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ABSTRACT

This packet contains 25 single-page plans for agricultural mechanics projects. Each plan consists of a one-page set of drawings of the object to be made with a list of needed materials, a cut list, and step-by-step construction procedures on the back of the page. Plans for the following wood projects are included: bluebird house, lawn seat, dog house, step stool, boot jack, and flower box. Wood and metal projects are as follows: swing seat, feed bunk, picnic table, and park bench. The following metal projects are provided: broom rack, clothes line pole, yard trailer, baseball "T" stand, deer stand, grooming chute, boot scraper, car ramps, bale spike, can crusher, post driver, wood rack, implement mover, show panel, and post puller. (KC)

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CATALOG NUMBER: 10-7804-I

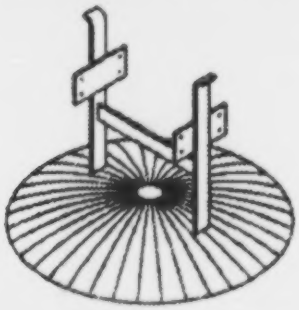
ED 379 452

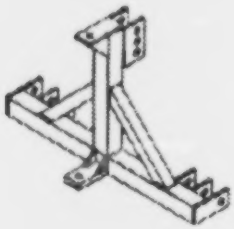
Single Sheet

Agricultural Mechanics Plans

WOOD
Bluebird house
Lawn seat
Dog house
Step stool
Boot jack
Flower box

WOOD & METAL
Swing seat
Feed bunk
Picnic table
Park bench





METAL
Broom rack
Clothes line pole
Yard trailer
Baseball "T" stand
Deer stand
Grooming chute
Boot scraper
Car ramps
Bale spike
Can crusher
Post driver
Wood rack
Implement mover
Show panel
Post puller

Drawn by John Haselhorst
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Edited By Dr. Leon Schumacher
Assistant Professor
University of Missouri-columbia

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Single Sheet

Agricultural Mechanics Plans

Catalog Number: 10-7804-I

August 1994

Drawn by John Haselhorst
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Preface

Agricultural Education curricula is designed to provide a broad base of study in various aspects of agriculture including agricultural mechanics. Much of this study involves hands-on activities in which the student has the opportunity to construct various projects. With changes in agriculture and technology, a revised resource book of project plans was needed.

The following 25 single-sheet plans are designed to meet that need by addressing changes in agricultural technology. These plans are designed to introduce the student not only to a variety of typical construction techniques, but to the variety of materials now used in the industry.

The activity which is the subject of this report was supported in whole or part by funds from the Department of Elementary and Secondary Education, Division of Vocational and Adult Education. However, the opinions expressed herein do not necessarily reflect the position or policies of the Missouri Department of Elementary and Secondary Education of the Division of Vocational and Adult Education, and no official endorsement should be inferred.

INSTRUCTIONAL MATERIALS LABORATORY

Table of Contents

WOOD
Bluebird house
Lawn seat
Dog house
Step stool
Boot jack
Flower box

WOOD & METAL
Swing seat
Feed bunk
Picnic table
Park bench

METAL
Broom rack
Clothes line pole
Yard trailer
Baseball "T" stand
Deer stand
Grooming chute
Boot scraper
Car ramps
Bale spike
Can crusher
Post driver
Wood rack
Implement mover
Show panel
Post puller

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Abbreviations and Terms

A number of abbreviations and terms are used in these plans.

Sch.	=	Schedule	HRR	=	Hot rolled round
O.C.	=	On Center	CRR	=	Cold rolled round
Jr.	=	Junior	R	=	Radius
Deg.	=	Degree	dia.	=	Diameter
ID	=	Inside diameter	Tube	=	Square tubing
OD	=	Outside diameter	imp.	=	Implement
ga.	=	Gauge	6p	=	Six-penny nail

BLUEBIRD HOUSE

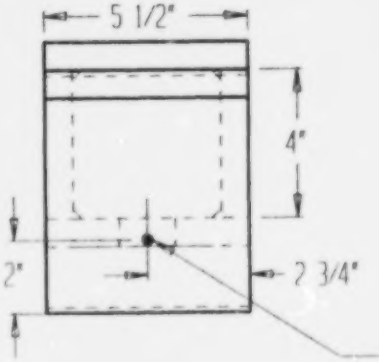


Fig. 1
Top View

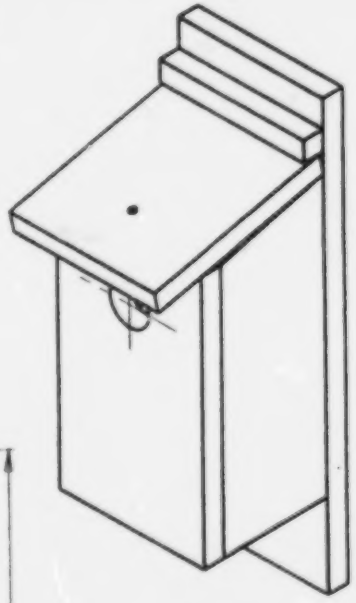


Fig. 4
Isometric View

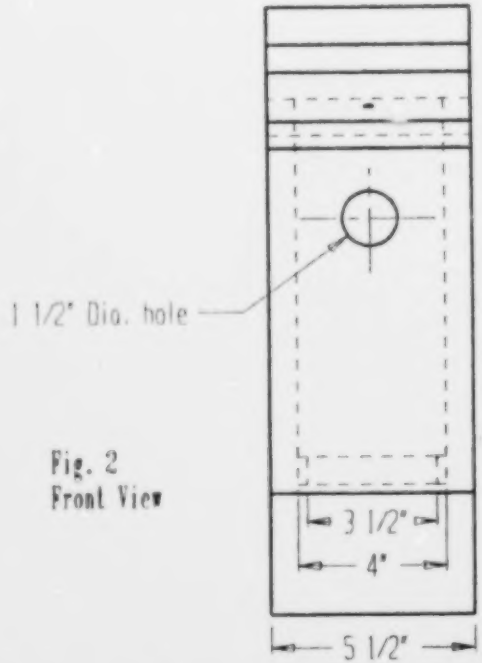


Fig. 2
Front View

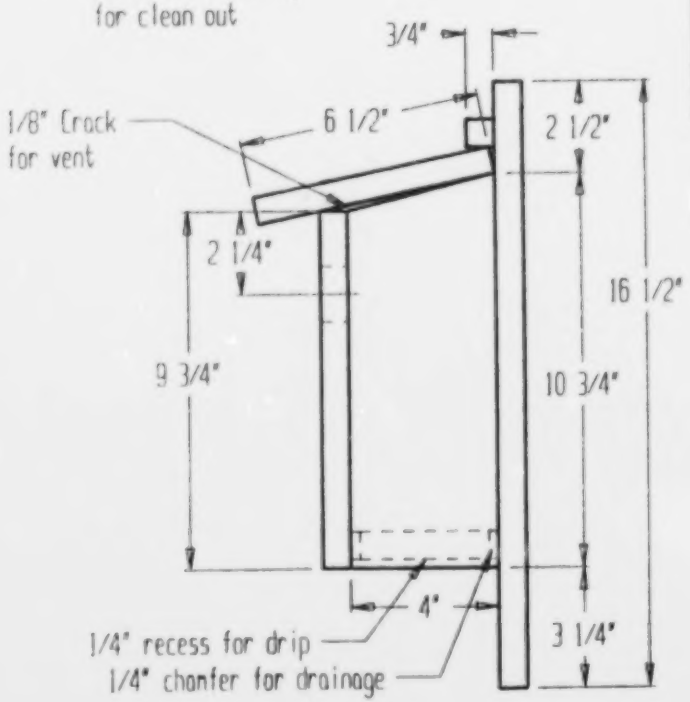


Fig. 3
End View

Design by: Missouri Conservation Commission

DRAWN BY: JOHN HASELHORST	DATE: 3/20/1994

BLUEBIRD HOUSE

BILL OF MATERIALS

5' x 1" x 6" Pine board
20 - 6p Finish nails
1 - 1 1/2" Screw
Linseed Oil

CUT LIST

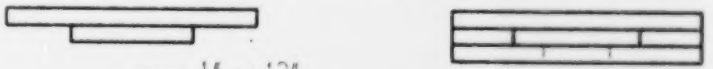
1- 16 1/2" x 1" x 6" Pine board - Back
1- 9 3/4" x 1" x 6" Pine board - Front
1- 6 1/2" x 1" x 6" Pine board - Roof
2- 10 3/4" x 1" x 6" Pine Boards ripped to 4" - Sides
1- 4" x 1" x 6" Pine board ripped to 4" - Bottom
1- 5 1/2" x 3/4" x 3/4" Pine board - Roof holder

CONSTRUCTION PROCEDURE

1. Mark and cut one 16 1/2" x 1" x 6" pine board for the Back.
2. Mark and cut one 9 3/4" x 1" x 6" pine board for the Front.
3. Center and drill the 1 1/2" entrance hole 2 1/2" from the top edge.
4. Mark and cut one 6 1/2" x 1" x 6" pine board for the Roof.
5. Mark and cut two 10 3/4" x 1" x 6" pine boards for the Sides. Now rip the two Sides to 4" width.
6. Then mark a line 1" down one side, diagonal to opposite top corner and cut. See fig. 3.
7. Mark and cut one 4" x 1" x 6" pine board for the Bottom. Then rip to 4". Chamfer 1/4" on each corner of the Bottom for drainage. See fig. 1 and 3.
8. Mark and cut one 5 1/2" x 3/4" x 3/4" pine board for the Roof holder.
9. Place the two Sides on the Back 3 1/4" from the bottom of the Back. See fig. 3.
10. Raise the Bottom 1/4" from the bottom of the bird house, as shown in fig. 3.
11. Attach the Front, Sides, Bottom, and Back using 6p finishing nails.
12. The Roof is now marked for the placement of a 1 1/2" wood screw.
13. Place the Roof holder and nail in place.
14. Finish with linseed oil.

LAWN SEAT

Fig. 1
Top View



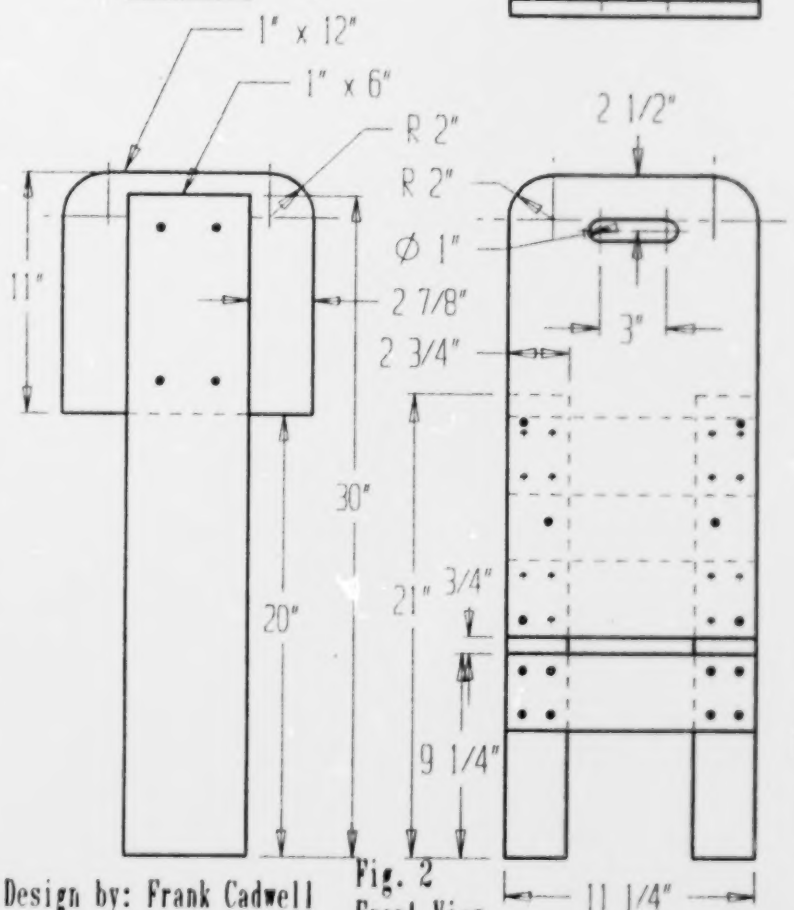
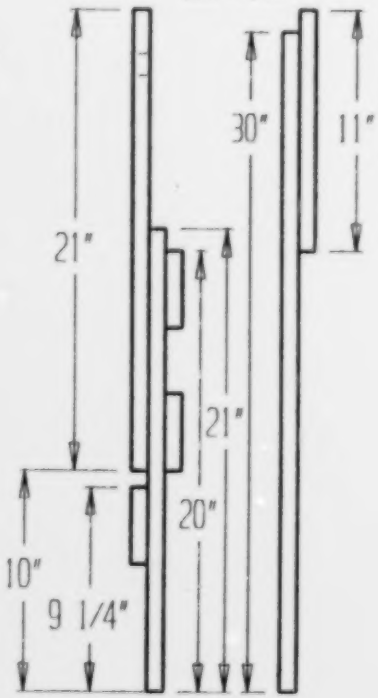


Fig. 2
Front View

Fig. 3
End View



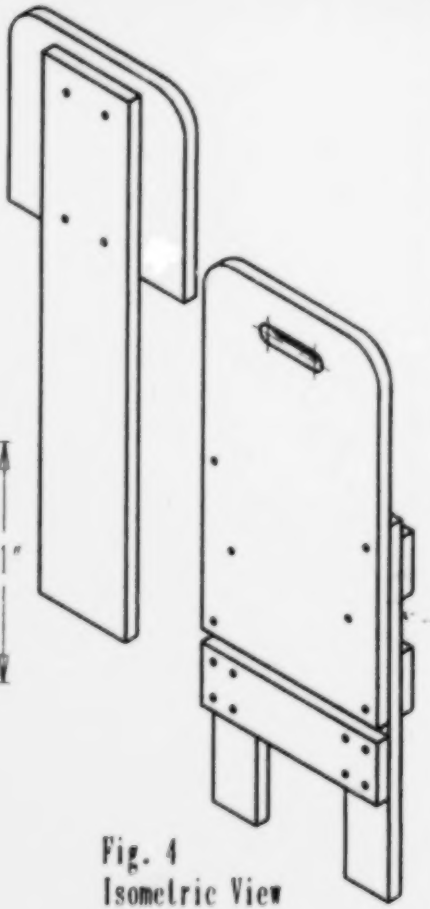


Fig. 4
Isometric View

All Dim. in Inches

Design by: Frank Cadwell

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

LAWN SEAT

BILL OF MATERIALS

32" x 1" x 12" Board
51" x 1" x 6" Board
34" x 1" x 4" Board
34 - 1 1/4" Sheet-rock screws
Linseed Oil

CUT LIST

1- 21" x 1" x 12" Board - Back
1- 11" x 1" x 12" Board - Seat
1- 30" x 1" x 6" Board - Rear leg
1- 21" x 1" x 6" Board (ripped in half) - Legs for seat back
3- 11 1/4" x 1" x 4" Boards - Back braces

CONSTRUCTION PROCEDURE

1. Cut the back 1" x 12" x 21" long.
2. Drill two 1" Holes 2 1/2" from top, centered on board 4 1/8" from each edge. Draw tangents and saw between holes to form slot handle.
3. Place 2" radius arc on each top corner.
4. Cross cut 1" x 6" to length of 21", rip the board to make legs for back.
5. Cross cut three 1" x 4" to 11 1/4" length.
6. Assemble the above. See figure 3.
7. Cut the seat 1" x 12" to 11" length. Cut two-2" radius arc on each corner.
8. Cut 1" x 6" to length of 30".
9. Assemble seat. See figure 2.
10. The two assembled parts slide together as a chair.
11. The two assembled parts also slide together for easy transport and storage.
12. Sand all surfaces and apply Linseed Oil.

DOG HOUSE

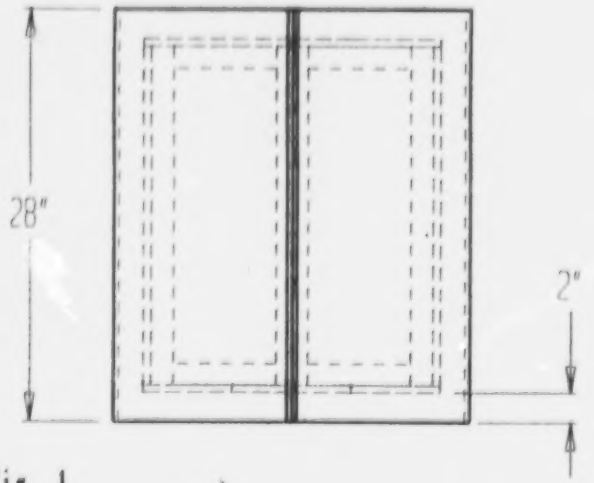


Fig. 1
Top View

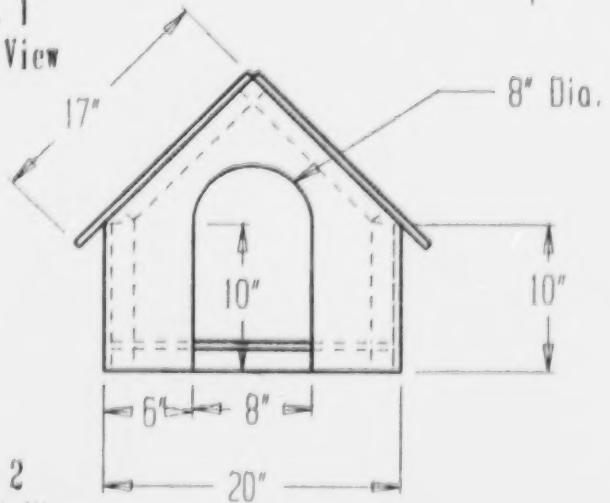


Fig. 2
Front View

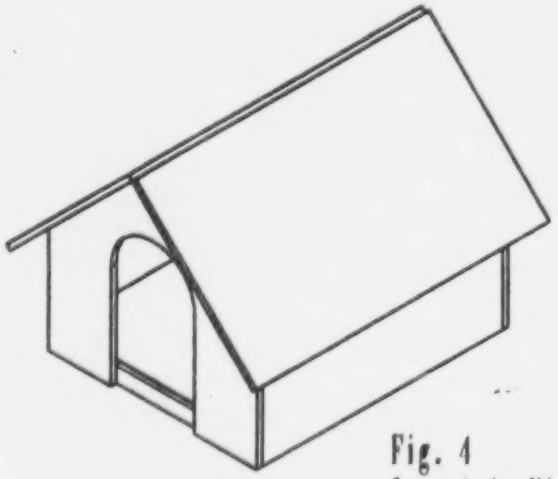


Fig. 4
Isometric View

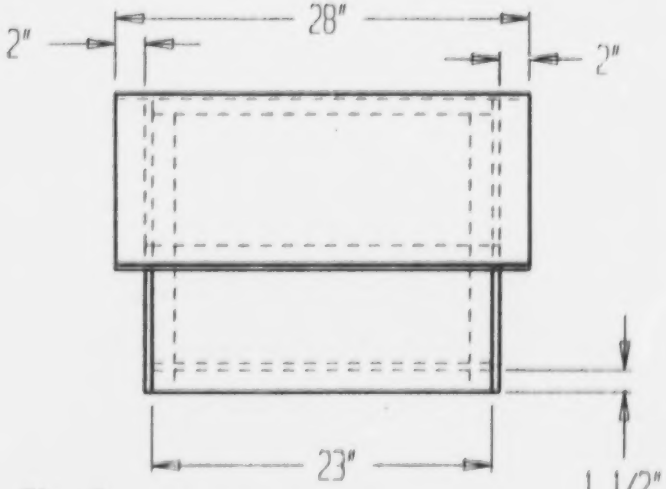


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 4/20/1994

DOG HOUSE

BILL OF MATERIALS

8' x 2" x 4" Pine Board
78 Sheetrock screws
4' x 8' x 1/2" CDX Plywood
Wood Primer and Exterior Paint

CUT LIST

4-8" x 2" x 2" Pine - corner braces
3-23" x 2" x 2" Pine - side floor braces and roof braces
2-16" x 2" x 2" Pine - front and rear braces
4-12" x 2" x 2" Pine - roof to end braces
2-20" x 20" x 1/2" CDX Plywood -front and rear
2-10" x 23" x 1/2" CDX Plywood - sides
1-20" x 23" x 1/2" CDX Plywood - floor
2-28" x 17" x 1/2" CDX Plywood - roof

CONSTRUCTION PROCEDURE

1. Cut one 20" x 23" x 1/2" CDX Plywood for the Floor.
2. Cut two 10" x 23" x 1/2" CDX Plywood for the Sides.
3. Cut two 20" x 20" x 1/2" CDX Plywood for the Front and Rear panels.
4. Take one of the 20" x 20" x 1/2" pieces and mark a point in the center, draw an 8" diameter circle, then draw two tangent lines to the bottom. Cut out the door opening. Note: Cut the entrance hole according to the dog size.
5. Cut the roof slopes on both 20" x 20" x 1/2" pieces.
6. Rip one 8' x 2" x 4" pine board into two 2" x 2" x 8' pieces.
7. Crosscut two 16" x 2" x 2" pine boards for Front and Rear Floor Braces.
8. Crosscut three 23" x 2" x 2" pine boards for Side Braces and Roof Brace.
9. Attach two 16" x 2" x 2" pine boards and two 23" x 2" x 2" pine boards to the one 20" x 23" x 1/2" CDX Plywood for the raised floor with sheetrock screws.
10. Attach Front, Back, and Sides to the 2" x 2" pine boards with sheetrock screws.
11. Cut four 8" x 2" x 2" pine boards for the Corner Braces.
12. Place the above (In step 11) four 8" x 2" x 2" on the inside corners and attach with sheetrock screws.
13. Cut four 12" x 2" x 2" pine boards for the Roof End Braces.
14. Attach four 12" x 2" x 2" (Step 13) braces inside with slope of the Front and Back.
15. Cut two 28" x 17" x 1/2" Plywood for the Roof.
16. Attach one of the 28" x 17" x 1/2" pieces, then slip the one 23" x 2" x 2" pine board (from step seven) into place and attach with sheetrock screws.
17. Attach the other 28" x 17" x 1/2" CDX Plywood Roof piece.
18. Finish by priming and painting with Exterior Paint.

STEP STOOL

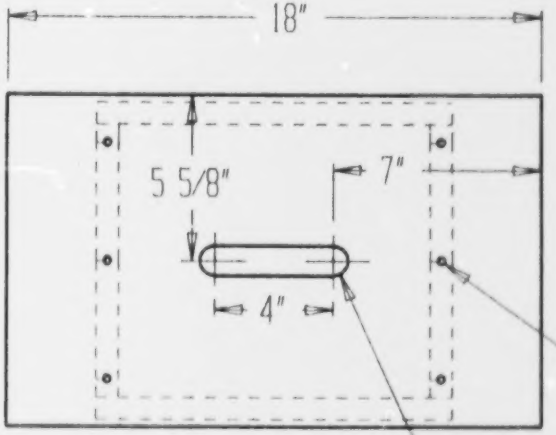


Fig. 1
Top View

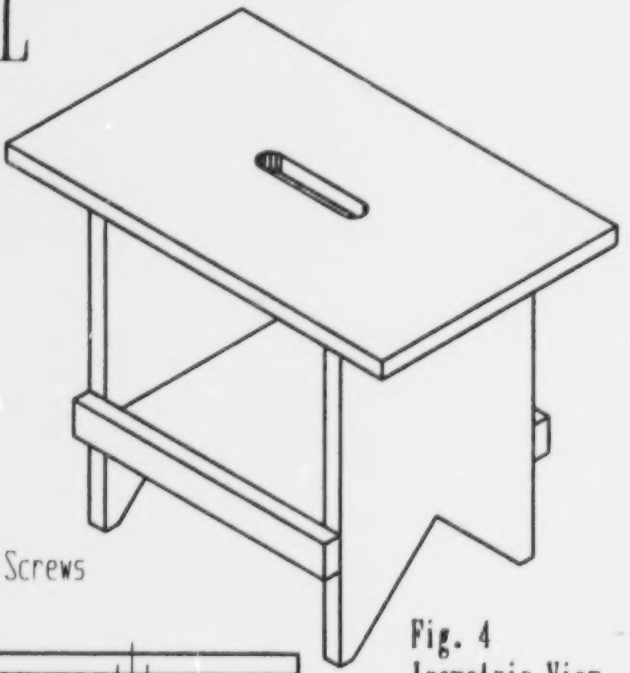


Fig. 4
Isometric View

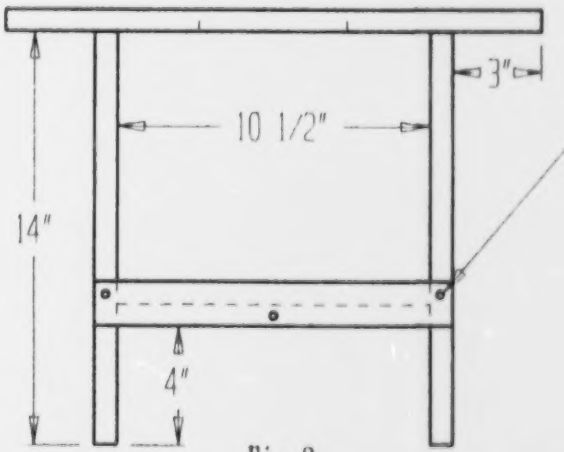


Fig.2
Front View

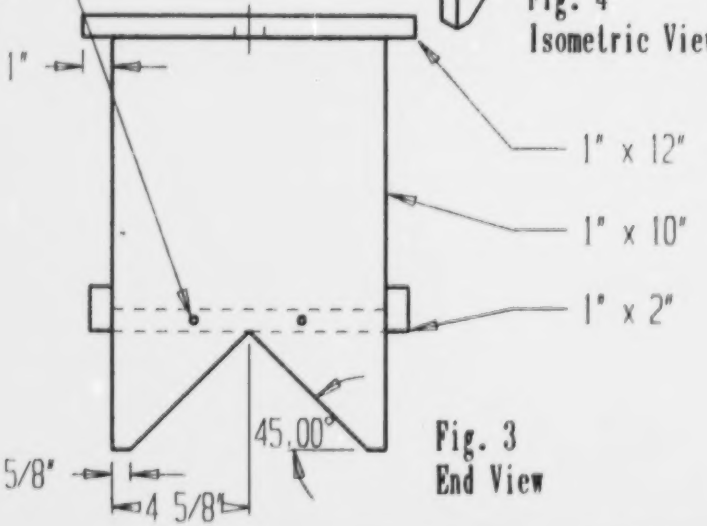


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

STEP STOOL

BILL OF MATERIALS

18" x 1" x 12" Board
38 1/2" x 1" x 10" Board
24" x 1" x 2" Board
16 - 1 1/2" Sheet-rock Screws
Stain
Polyurethane

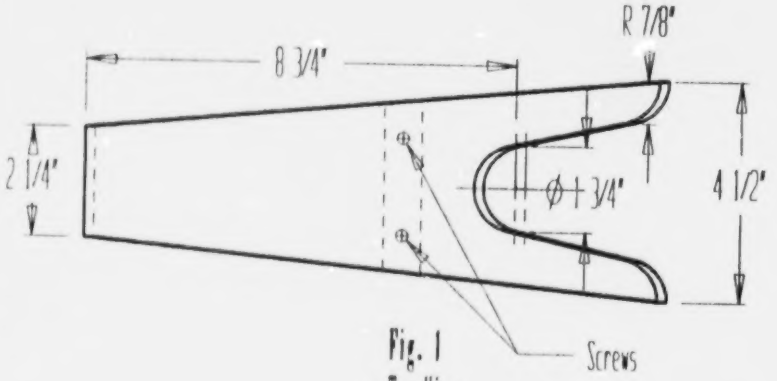
CUT LIST

1- 18" x 1" x 12" Board - Top
2- 14" x 1" x 10" Boards - Legs
1- 10 1/2" x 1" x 10" Board - Bottom shelf
2- 12" x 1" x 2" Boards - Side braces
16- 1 1/2" Sheet-rock Screws

CONSTRUCTION PROCEDURE

1. Cut top 1" x 12" to 18" length.
2. Cut two legs from 1" x 10" to 14" length.
3. Cut 45 degree angles in legs as shown in fig. 3.
4. Cut two 1" x 2" braces 12" long.
5. Drill two 1" holes 7" from both ends of top.
6. Saw tangents to the two holes to form handle in top as shown in fig. 1.
7. Use Sheet-rock screws to assemble.
8. Sand all surfaces.
9. Apply stain allowing to dry and then apply polyurethane.

BOOT JACK



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Top View

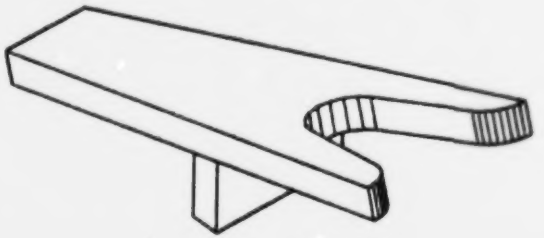

Fig. 4
Isometric View

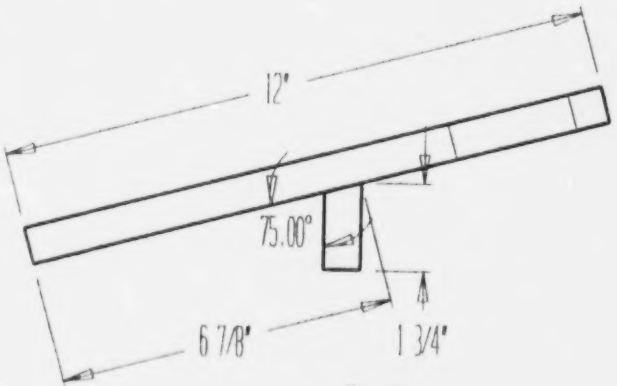

Fig. 2
Side View

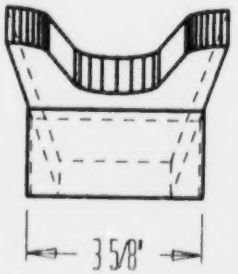

Fig. 3
End View

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BOOT JACK

BILL OF MATERIALS

14" x 1" x 6" Board
2 - 1 1/2" Sheet-rock screws
Polyurethane

CUT LIST

1- 12" x 1" x 6" Board
1- 1 3/4" x 1" x 6" Board
2- 1 1/2" Sheet-rock Screws

CONSTRUCTION PROCEDURE

1. Crosscut 1" x 6" to 12" length.
2. Rip the above 1" x 6" to 4 1/2" width.
3. Draw a working line the length of the board O.C.
4. Mark a 1 3/4" circle 8 3/4" from one end on working line. See figure 1.
5. Mark a 7/8" radius arc 7/8" in from the edge on each side and 7/8" from the ends. See fig. 1.
6. Connect the arc to circle created in step 4 with a tangent line. Do this on each side.
7. Saw along the line created.
8. At opposite end place a mark on each side of working line 1 1/8".
9. Connect marks to opposite corners and saw along line to obtain taper. See fig.1.
10. Cut 1 3/4" x 3 5/8" block with a 15 degree angle on one 3 5/8" side. See figure 2.
11. Assemble with 1 1/2" Sheet-rock screws as shown in figure 1.
12. Sand and apply polyurethane.
13. Option cut leather strip 1 1/2" wide 12" long and then glue in place. Trim ends. Chamois may be substituted as leather.

FLOWER BOX

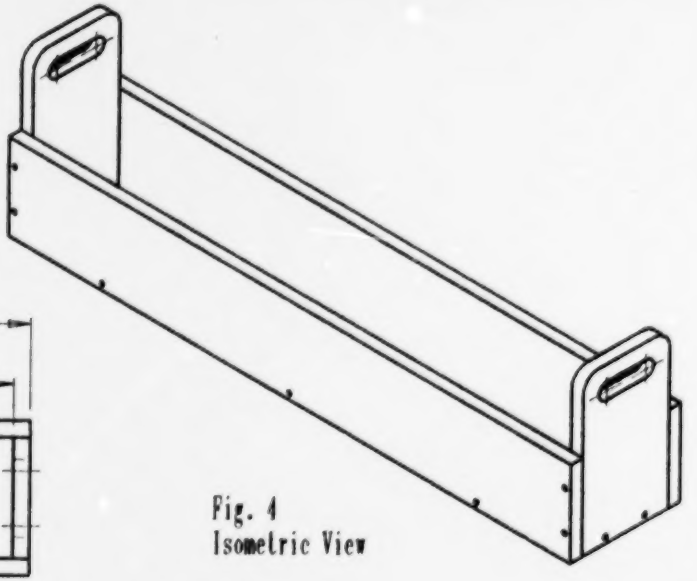


Fig. 4
Isometric View

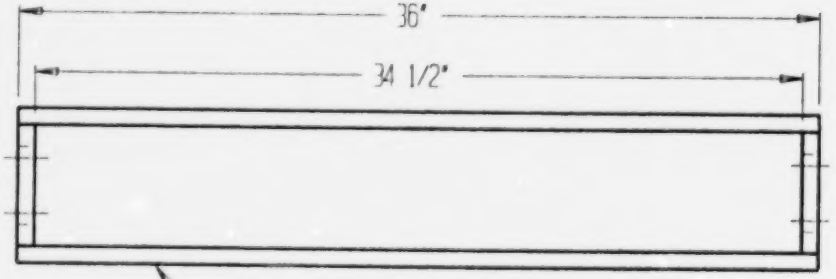


Fig. 1
Top View

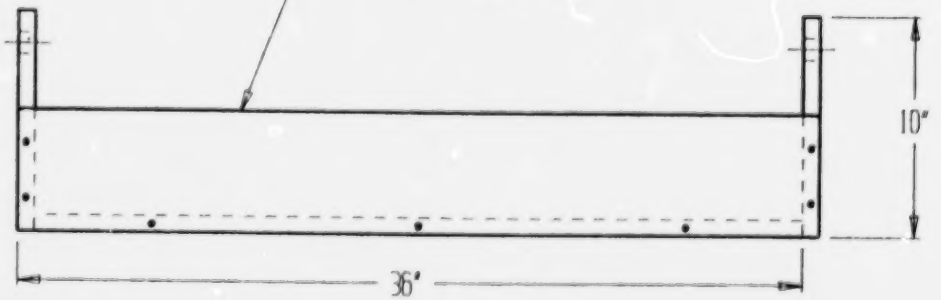


Fig. 2
Front View

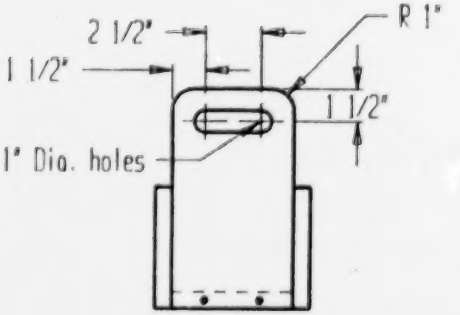


Fig. 3
End View

DRAWN BY: JOHN BASELHORST	DATE: 3/20/1994

FLOWER BOX

BILL OF MATERIALS

14' x 1" x 6" Pine board
18 - 1 1/2" Sheet rock screws
Linseed oil

CUT LIST

2- 36" x 1" x 6" Pine boards - Sides
1- 34 1/2" x 1" x 6" Pine board - Bottom
2- 10" x 1" x 6" Pine boards - Ends

CONSTRUCTION PROCEDURE

1. Using a square and scratch awl, mark and cut two 36" x 1" x 6" pine boards for the Sides. See fig. 2.
2. Mark and cut one 34 1/2" x 1" x 6" pine board for the Bottom.
3. Mark and cut two 10" x 1" x 6" pine boards for the Ends.
4. Mark 1 1/2" in from both the top and edge using a try square. See fig. 3.
5. Using a brace and #16 wood auger bit, drill the 1" diameter holes shown in fig. 3. Finish handle cut with saw.
6. Round the top corners of the handles to a 1" radius as shown in fig. 3.
7. Using the scratch awl, space and mark holes for the 18 sheet rock screws as shown in fig 4.
8. Sand all surfaces and apply linseed oil or desired finish and then assemble.

SWING SEAT

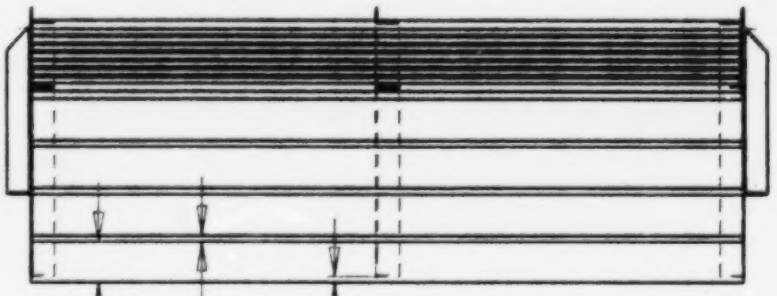
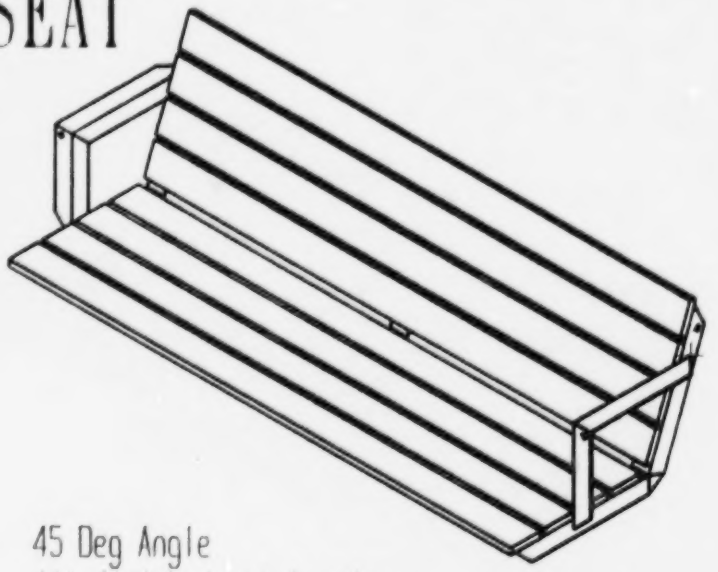


Fig. 1
Top View



45 Deg Angle
All finished metal ends

Fig. 4
Isometric View

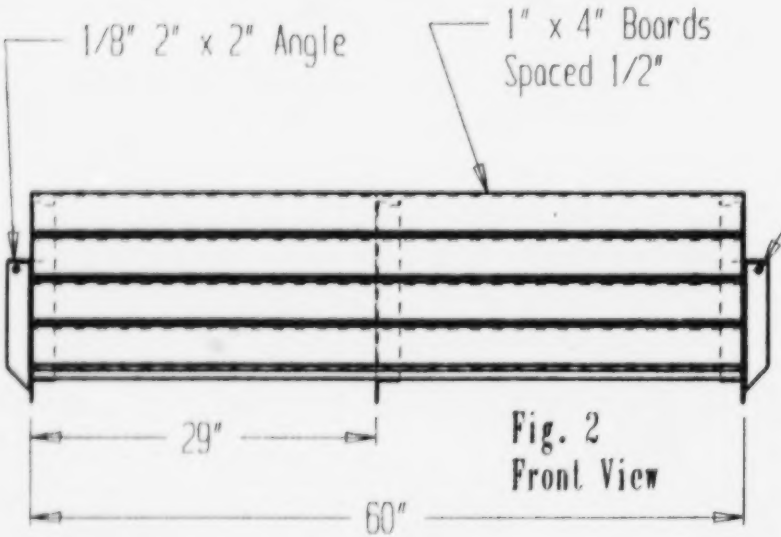


Fig. 2
Front View

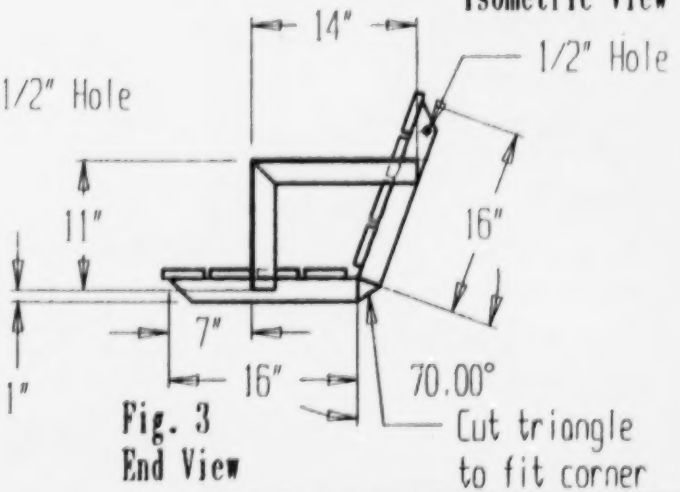


Fig. 3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

SWING SEAT

BILL OF MATERIALS

12'-2" x 2" x 2" x 1/8" Angle Iron
4" x 1/8" x 2" Flat Metal
4 - 10' x 1" x 4" Boards
24 - 1/4" x 1 1/4" Carriage bolts
Primer
Enamel Paint

CUT LIST

3- 32" 2" x 2" x 1/8" Angle Iron - Seat supports
2- 11" 2" x 2" x 1/8" Angle Iron - Arm rest up rights
2- 14" 2" x 2" x 1/8" Angle Iron - Arm rest
3- 1/8" x 2" Gussets - Between bottom and back of seat supports
8- 60" x 1" x 4" Boards

CONSTRUCTION PROCEDURE

1. Cut three 2" x 2" x 1/8" Angle Iron 32" long.
2. Make a cut in the center of 32" angle iron pieces just through one leg of angle iron.
3. Bend pieces to 70 degree angle. A jig is useful.
4. Cut triangle pieces to fit open space and weld in place.
5. Cut 45 degree angle on back and bottom edges.
6. Cut 2 - 14" x 2" x 2" x 1/8" angle iron and 2 - 11" x 2" x 2" x 1/8" angle iron to form arm rest. Place 45 deg. angle on ends, to create right and left sides. (fig. 3.)
7. Sand and Paint boards. Use primer and apply enamel paint.
8. Drill holes and attach boards, suggest 1/4" x 1 1/4" carriage bolts.

FEED BUNK

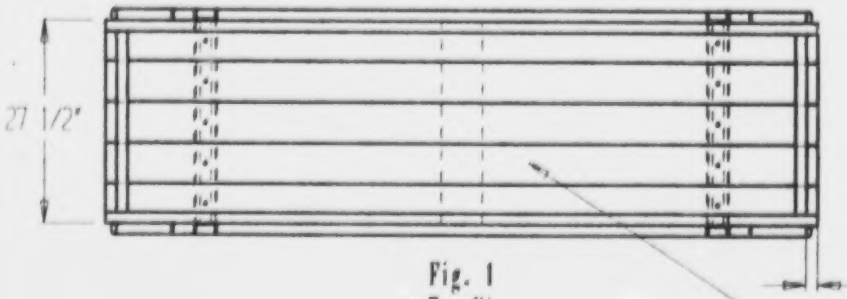


Fig. 1
Top View

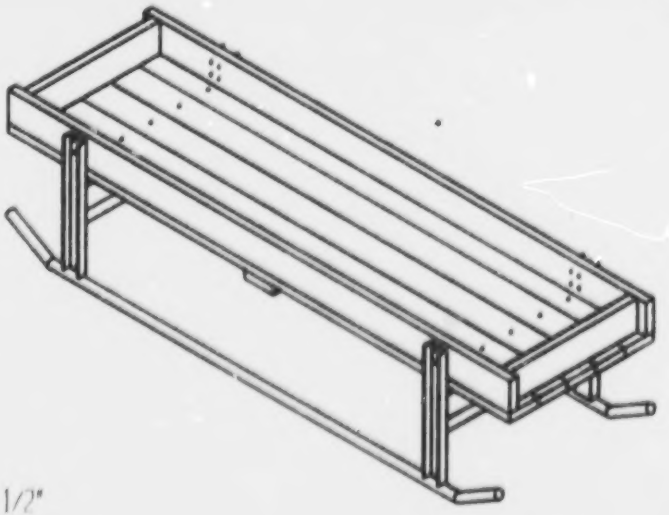


Fig. 4
Isometric view

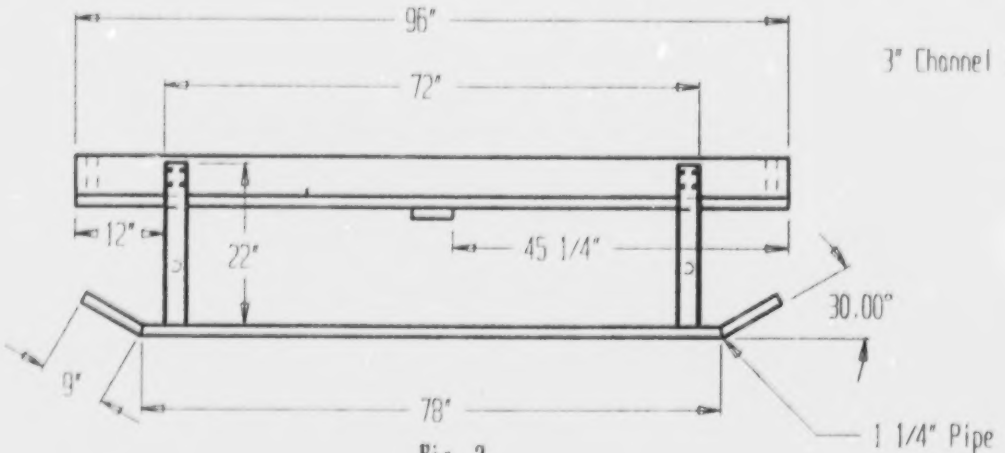


Fig. 2
Front View

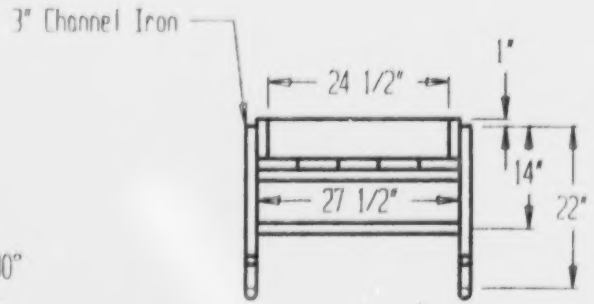


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 3/20/1994

FEED BUNK

BILL OF MATERIALS

12' x 3" Channel iron
21' x 1 1/4" Sch 40 Pipe
8 x 8' x 2" x 6" Lumber
26 - 5/16" x 2" Carriage bolts
1# - 16p Nails
Metal Primer
Enamel Paint

CUT LIST

4- 22" x 3" Channel - Legs
2- 27 1/2" x 3" Channel - Crossbraces
2- 8' x 1 1/4" Sch 40 P pe - Runners
2- 27 1/2" x 1 1/4" Sch 40 Pipe - Stabilizers
7- 8' x 2" x 6" Boards - Floor and sides
2- 24 1/2" x 2" x 6" Boards - Ends
1- 27 1/2" x 2" x 6" Board - Center support

CONSTRUCTION PROCEDURE

1. Cut four 22" x 3" channel for the Legs.
2. Cut two 27 1/2" x 3" channel for the Crossbraces.
3. Cut two 27 1/2" x 1 1/4" Sch 40 pipe for the Stabilizers. See fig. 3.
4. Cut two 8' x 1 1/4" Sch 40 pipe for the Runners.
5. Weld the Crossbraces and Stabilizers to the Legs. Use pipe bar clamps to assemble. Check for squareness, tack, and weld.
6. Bend 30 degree angles on the Runners 9" from the ends as shown in fig. 2.
7. Notch the bottom of leg assembly to fit the pipe Runners.
8. Drill 5/16" holes for the carriage bolts as shown in fig. 1 and fig. 2.
9. Grind all sharp edges smooth, remove weld spatter, prime metal, and paint with enamel paint.
10. Cut two 24 1/2" x 2" x 6" boards for the Ends.
11. Cut one 27 1/2" x 2" x 6" board for the Center support.
12. Square, mark, and cut seven 8' x 2" x 6" boards for the Floor and Sides.
13. Assemble with 16p nails and carriage bolts.

PICNIC TABLE

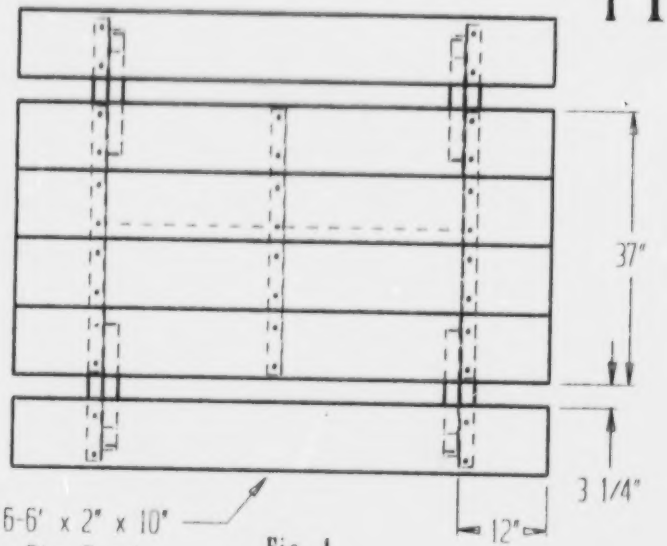


Fig. 1
Top View

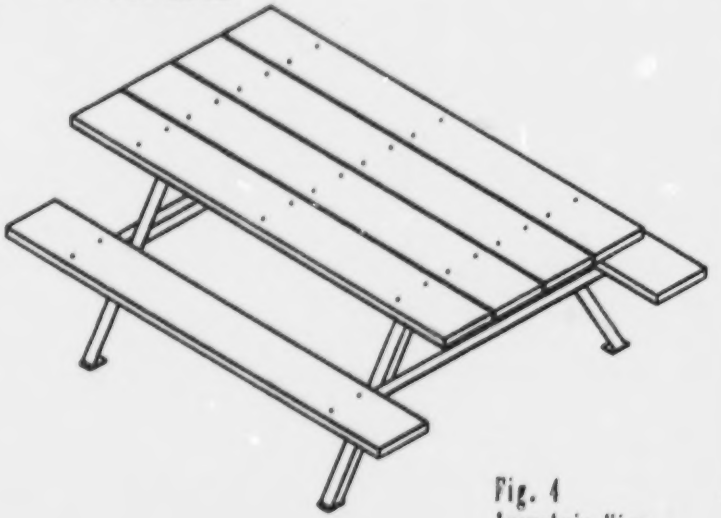


Fig. 4
Isometric View

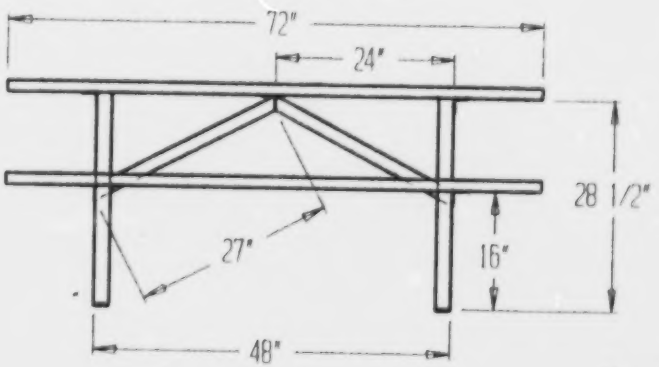


Fig. 2
Front View

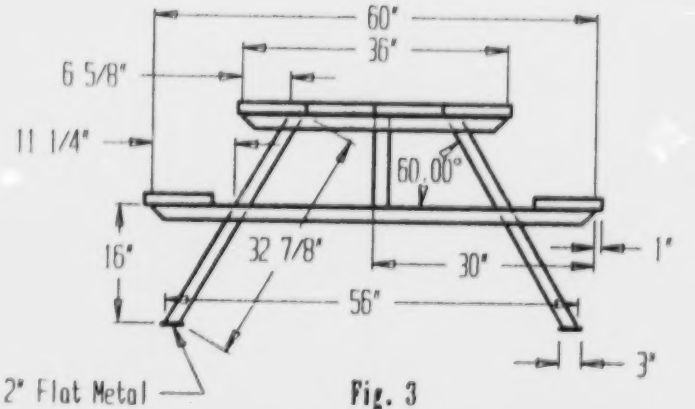


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 3/20/1994

PICNIC TABLE

BILL OF MATERIALS

32' x 2" x 2" x 1/8" Angle Iron
12" x 1/4" x 2" Flat metal
3 x 12' x 2" x 10" Boards
32 - 1/4" x 2" Carriage Bolts
Metal Primer
Enamel Paint

CUT LIST

2- 60" x 2" x 2" x 1/8" Angle iron - Seat cross bars
3- 36" x 2" x 2" x 1/8" Angle iron - Top cross bars
4- 32 7/8" x 2" x 2" x 1/8" Angle iron (60 Degree angle) - Legs
2- 27" x 2" x 2" x 1/8" Angle iron - Braces
4- 3" x 1/4" x 2" Flat metal - Feet
6- 6' x 2" x 10" Boards

CONSTRUCTION PROCEDURE

1. Cut two 60" x 2" x 2" x 1/8" angle iron with 45 degree angles for the Seat cross bars.
2. Cut three 36" x 2" x 2" x 1/8" angle iron with 45 degree angles for the Top cross bars.
3. Cut two 32 7/8" x 2" x 2" x 1/8" angle iron with 60 degree angles for the Legs.
   Note: There will be a right and left side to the legs. Turn angle iron towards center of picnic table. See fig. 4.
4. Cut two 32 7/8" x 2" x 2" x 1/8" angle iron with 60 degree angles for the Legs.
5. Weld Seat cross bars and Legs together as shown in fig. 3.
6. Cut two 27" x 2" x 2" x 1/8" angle iron for Braces in the center. Angle ends to fit.
7. Cut four 3" x 1/4" x 2" flat metal for Feet. See fig. 3.
8. Weld the Feet on the Legs and weld the Braces in the Center and place center Top cross bar and weld.
9. Grind all sharp edges, remove weld spatter, prime metal, and paint with enamel paint.
10. Cut six 6' x 2" x 10" boards for seat and table top.
11. Place boards on metal frame, drill 1/4" holes, and bolt boards with 1/4" x 2" carriage bolts. Use a bar clamp to hold boards together while bolting.

Note: Use a router to round off top edges of seat and top.

PARK BENCH

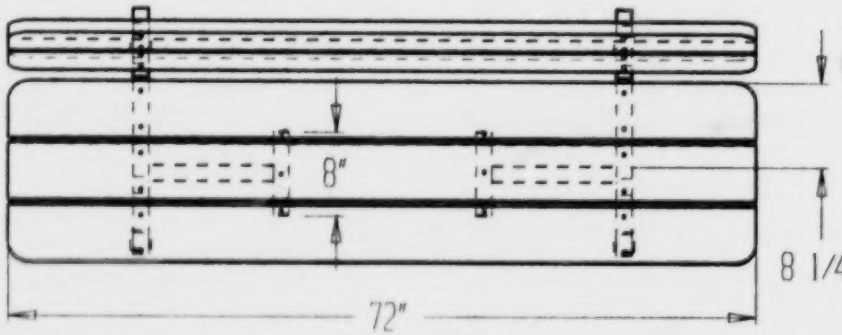


FIG. 1
Top View

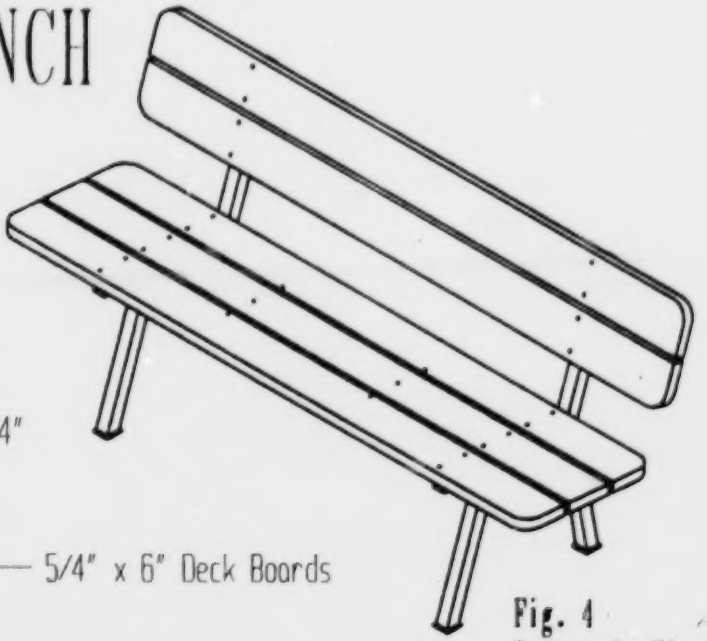


Fig. 4
Isometric View

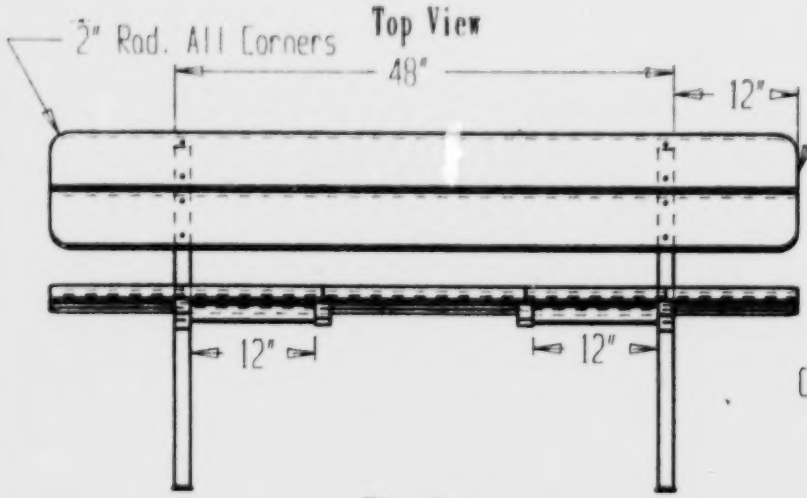


Fig. 2
Front View

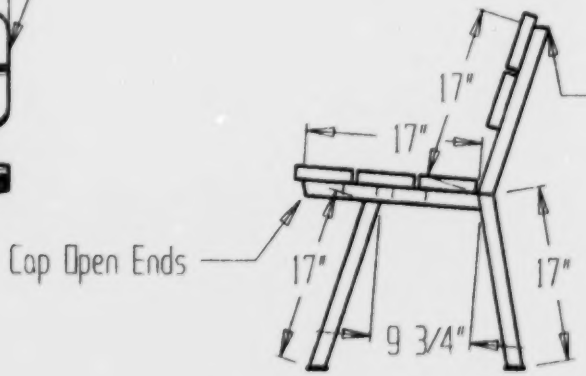


Fig. 3
End View

Design by: Bob Sellmeyer

DRAWN BY: JOHN HASELHORST	DATE: 2/20/1994

PARK BENCH

BILL OF MATERIALS

13'-6" x 1 1/2" x 1 1/2" x 16 ga. Tube
8" x 1/8" x 2" Flat Metal
10" x 1/8" x 1 1/4" Flat Metal
5 - 6' x 5/4" x 6" CCA Deck Boards
26 - 2" Trailer Floor Screws
Primer
Enamel Paint

CUT LIST

8- 17" x 1 1/2" x 1 1/2" x 16 ga. Tube - 76 Degree angle on each end
2- 12" x 1 1/2" x 1 1/2" x 16 ga. Tube - Seat brace
2- 8" x 1 1/2" x 1 1/2" x 16 ga. Tube - Center support
4- 2" x 1/8" x 2" Flat Metal - Base for legs
8- 1 1/4" x 1/8" x 1 1/4" Flat Metal - End caps
5- 6' x 5/4" x 6" CCA Deck Boards

CONSTRUCTION PROCEDURE

1. Cut eight 17" x 1 1/2" x 1 1/2" x 16ga. tube with 76 degree angles on each end.
2. Cut two 12" x 1 1/2" x 1 1/2" x 16ga. tube for the seat brace.
3. Cut two 8" x 1 1/2" x 1 1/2" x 16ga. tube for the center support.
4. Lay out with a jig (or on floor) all eight pieces cut in step one, then tack, and weld as shown in fig. 3.
5. Weld the seat brace and center support to each leg. Note: right and left ends.
6. Cut four 2" x 1/8" x 2" flat metal for leg base and weld in place.
7. Cut eight 1 1/4" x 1/8" x 1 1/4" flat metal to cap ends of tube and weld in place. Note: Stand legs up on caps and tack as angle will not fit exactly.
8. Clean weld spatter, prime metal, and paint with enamel paint.
9. Obtain five 6' x 5/4" x 6" CCA Deck Board
10. Clamp boards in place and fasten with 2" trailer floor screws as shown in fig. 4.
11. Use a router to round edges on seat and back.

BROOM RACK

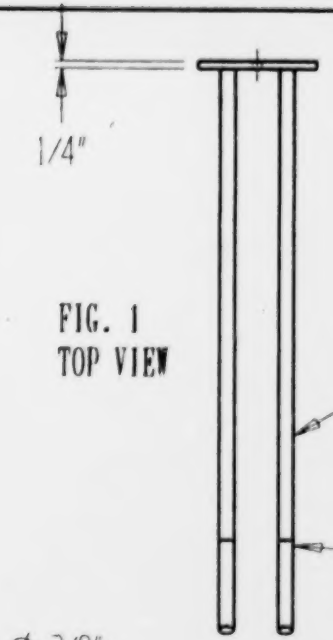


FIG. 1
TOP VIEW

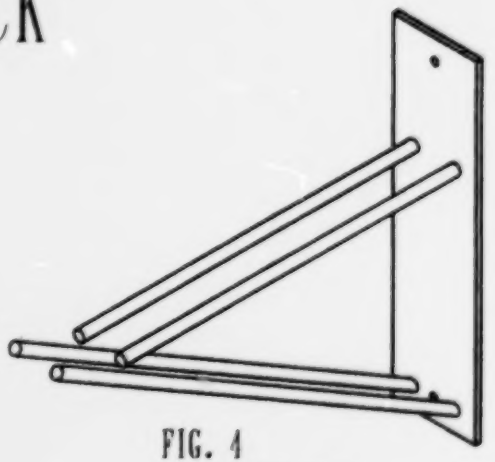


FIG. 4
ISOMETERC VIEW

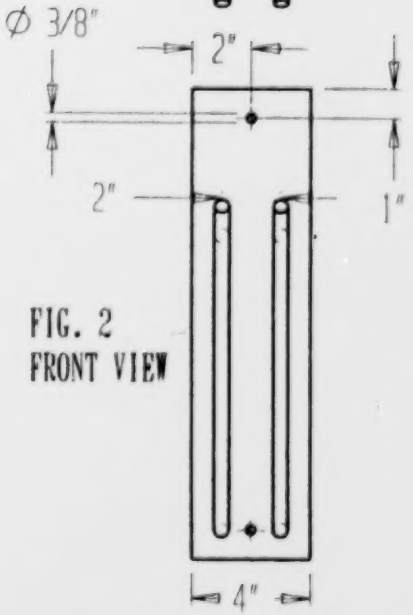


FIG. 2
FRONT VIEW

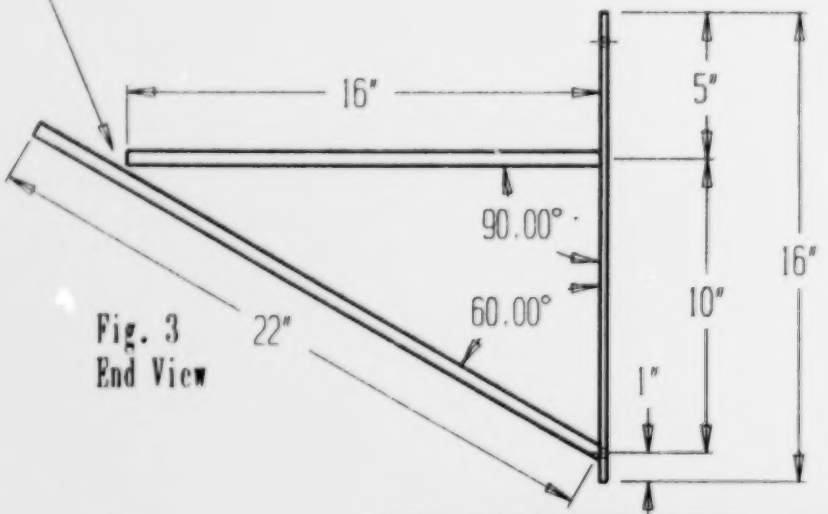


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

BROOM RACK

BILL OF MATERIALS

16" x 1/4" x 4" Flat metal
6'-4" x 1/2" Rod HRR
Metal Primer
Enamel Paint

CUT LIST

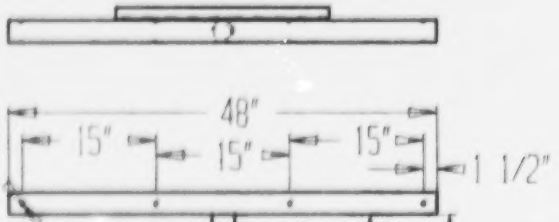
1- 16" x 1/4" x 4" Flat Metal - Wall bracket
2- 22" x 1/2" Rods - Brace pieces
2- 16" x 1/2" Rods - Broom holders

CONSTRUCTION PROCEDURE

1. Cut 1/4" x 4" flat metal 16" long.
2. Drill two 5/16" holes centered 1" from each end.
3. Cut two 1/2" rods 16" long, weld perpendicular to flat metal 1" from edge and 5" from top.
4. Cut two 1/2" rods 22" long, weld to flat metal 1" from bottom and 1" from sides, tilt upward at 60 degree angle.
5. Weld intersection of rods as shown in figure 3.
6. Place all rods on center.
7. Grind all sharp edges smooth, round off corners, remove weld spatter, use metal primer and finish with enamel paint.

CLOTHES LINE POLE

Fig. 1
Top View



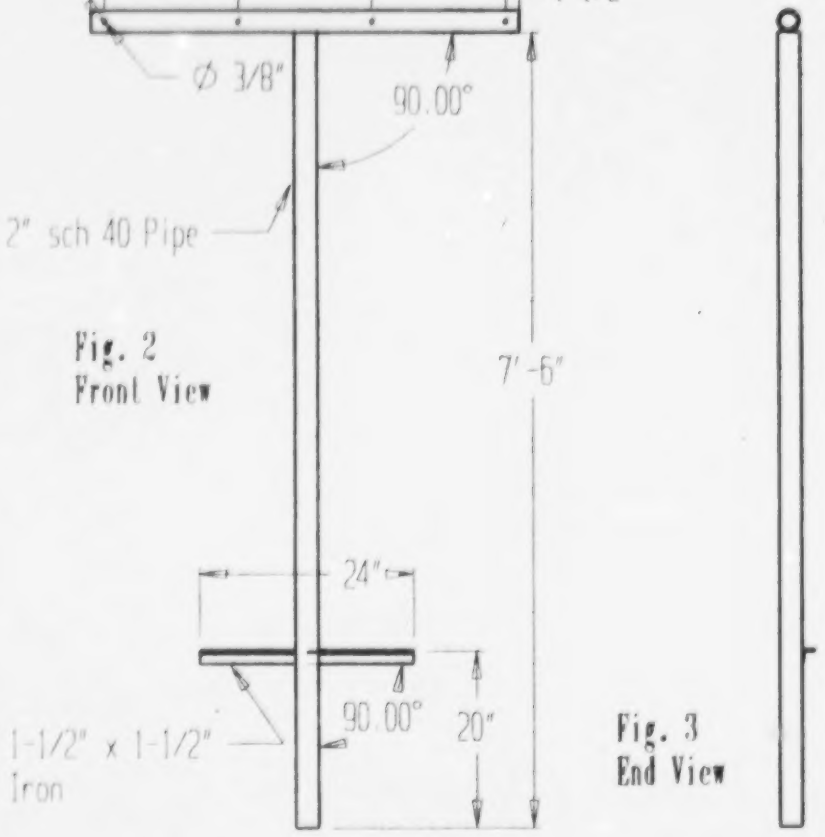


Fig. 2
Front View

Fig. 3
End View

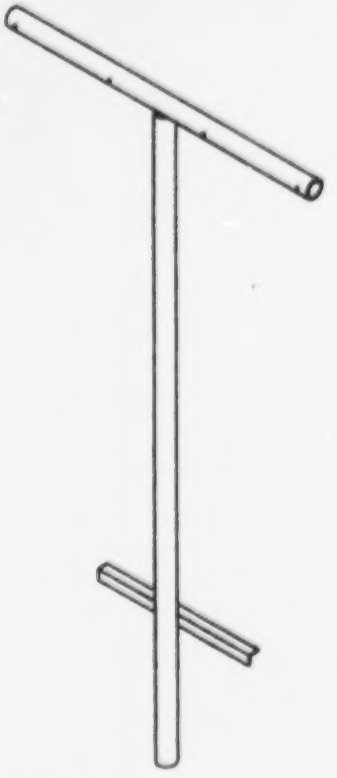


Fig. 4
Isometric View

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

CLOTHES LINE POLE

BILL OF MATERIALS

23' x 2" Sch 40 Pipe
4' x 1 1/2" x 1 1/2" x 3/16" Angle Iron
4" x 2" x 1/8" Flat Metal
Metal Primer
Enamel Paint

CUT LIST

2- 48" x 2" Sch 40 Pipe - Top bar
2- 90 2" Sch 40 Pipe - Upright
2- 24" x 1 1/2" x 1 1/2' 3/16" Angle Iron - Stabilizer (buried under ground)
4- 1/8" x 2" x 2" Flat Metal - Cut to round corners (end caps)

CONSTRUCTION PROCEDURE

1. Cut 2" pipe top bar to 48".
2. Center punch and drill 3/8" holes 1 1/2" from end then 15" O.C. See figure 2.
3. End caps welded in place required to keep out birds and insects.
4. Cut 2" pipe to 90".
5. Notch one end of 7'-6" pipe or flatten for fit up to top bar. See figure 2.
6. Weld top bar to stand pipe at 90 degrees making sure holes are horizontal with ground.
7. Attach angle iron to stand-pipe. This will increase stability when buried in the ground.
8. Grind all sharp edges smooth, remove weld spatter, use metal primer and finish with enamel paint.

YARD TRAILER

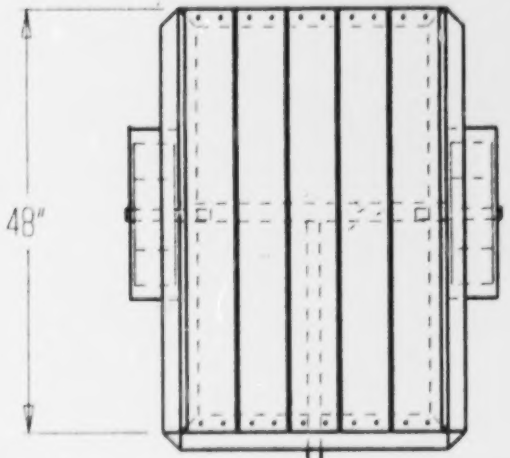


Fig. 1
Top View

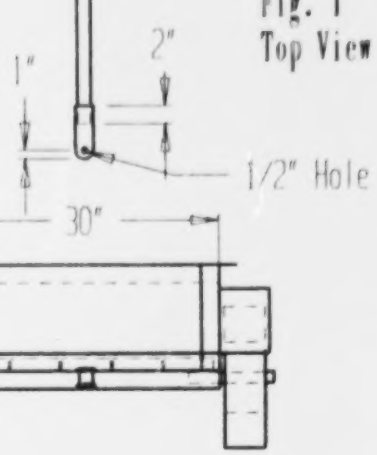


Fig. 2
Front View

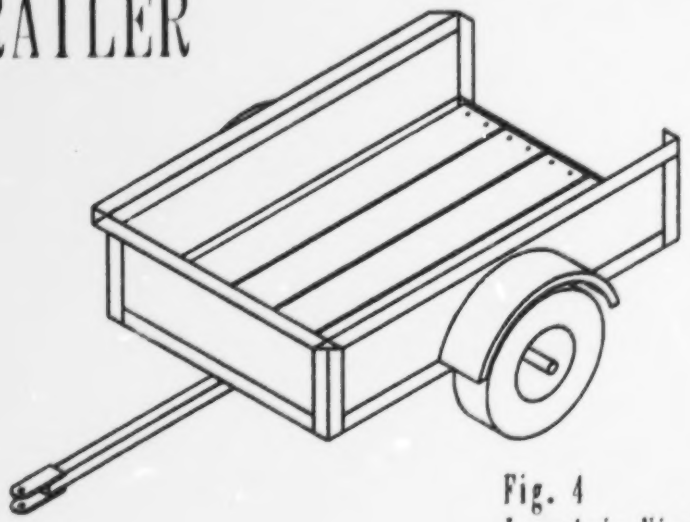


Fig. 4
Isometric View

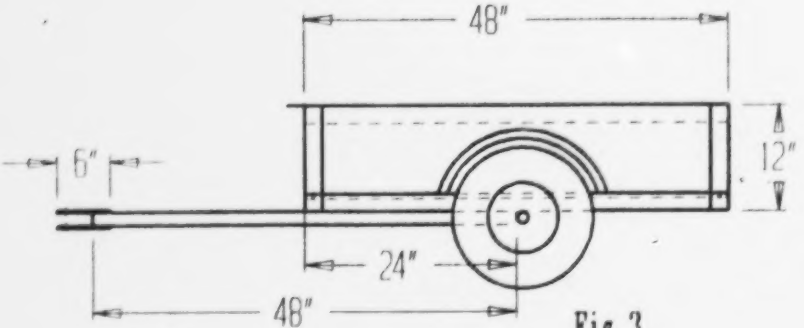


Fig.3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 4/20/1994

YARD TRAILER

BILL OF MATERIALS

27 1/2' x 2" x 2" x 1/8" Angle Iron
2 1/2' x 2" x 2" x 3/16" Angle Iron
4' x 1 1/2" x 1 1/2" x 11 ga. Tube
1' x 1/4" x 2" Flat metal
3' x 4' x 14 ga. Sheet metal
2 x 2' x 2" x 1/8" Gussets
4 x 8' x 2" x 6" Boards
24 trailer floor screws
Primer
Enamel Paint
Trailer Parts include spindles, hubs, wheels, tires, and fenders available from suppliers.

Redneck:	Part	Reference #	Part #
	Spindle	163200	R104BT8
	Hub	106200	34822545UC1
	Wheel & Tires	342000	480TW5-B
	Fenders	355400	2101

CUT LIST

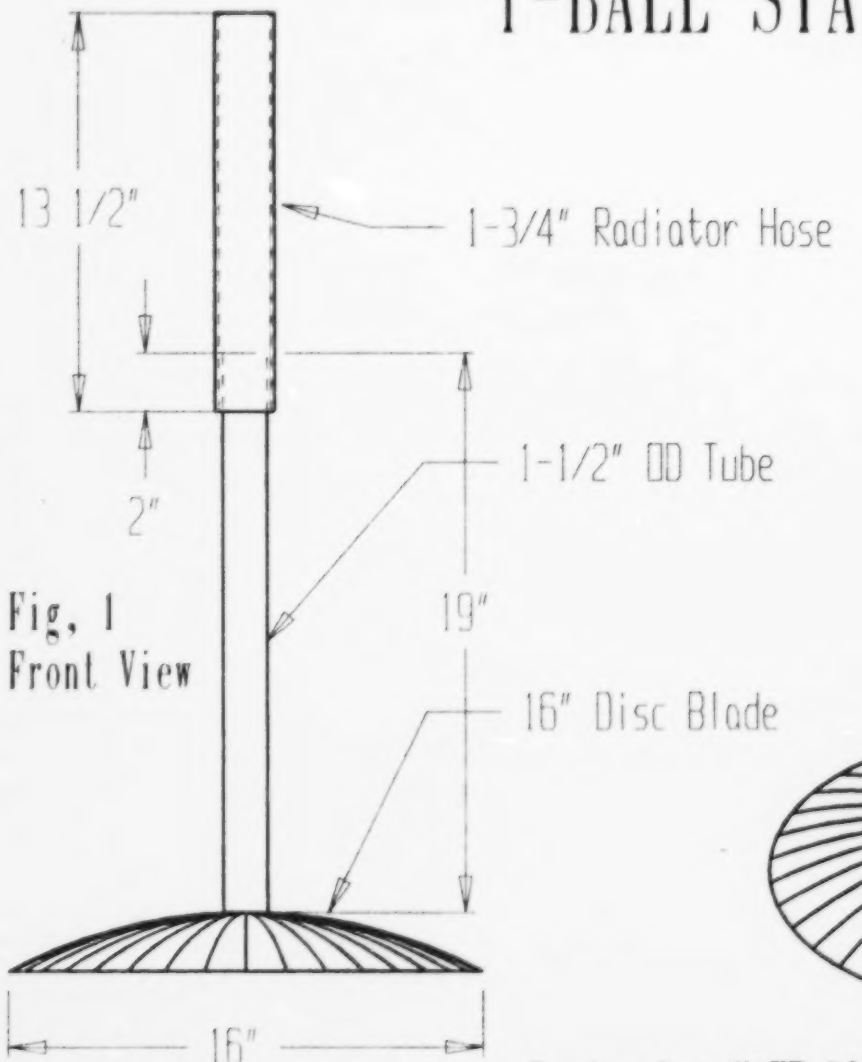
2-48" x 2" x 2" x 1/8" Angle Iron - 45 deg. on ends - bed sides
2-30" x 2" x 2" x 1/8" Angle Iron - 45 deg. on ends - bed ends
4-12" x 2" x 2" x 1/8" Angle Iron - uprights
2-48" x 2" x 2" x 1/8" Angle Iron - upper side rails
1-30" x 2" x 2" x 1/8" Angle Iron - upper front rail
2-2" x 2" x 1/8" Gussets - upper front corners
1-30" x 2" x 2" x 3/16" Angle Iron - center support for spindles
1-48" x 1 1/2" x 1 1/2" x 11ga. Tube - tongue
2-6" x 1/4" x 2" Flat Metal - hitch
2-47" x 11" x 14 ga. Sheet Metal - sides
2-29" x 11" x 14 ga. Sheet Metal - front

CONSTRUCTION PROCEDURE

1. Cut two 48" x 2" x 2" x 1/8" angle iron with 45 degree ends for Bed Sides.
2. Cut two 30" x 2" x 2" x 1/8" angle iron with 45 degree ends for Bed Ends.
3. Butt the Bed Sides and Bed Ends together, check squareness, tack and weld.
4. Cut four 12" x 2" x 2" x 1/8" angle iron for Uprights.

5. Cut two 48" x 2" x 2" x 1/8" angle iron with 45 degree ends for Upper Side Rails.
6. Cut one 30" x 2" x 2" x 1/8" angle iron with 45 degree ends for Upper Front Rail.
7. Tack the four 12" x 2" x 2" x 1/8" angle iron Uprights on the outside of the bottom frame at the corners. Check for squareness then weld.
8. Cut two 47" x 11" x 14 ga sheet metal for the Sides.
9. Cut one 29" x 11" x 14 ga sheet metal for the Front.
10. Place the sheet metal inside the angle iron frame.
11. Place the Upper Rails over the sheet metal, tack and weld.
12. Cut two 45 degree 2" x 2" x 1/8" gussets for front corners and weld in place.
13. Cut one 48" x 1 1/2" x 1 1/2" x 11 ga tube for the Tongue.
14. Cut one 30" x 2" x 2" x 3/16" angle iron for the Axle.
15. Weld the 30" x 2" x 2" x 3/16" angle iron to the bottom of trailer frame. Note the direction of the angle iron to the front of trailer.
16. Place the 48" x 1 1/2" x 1 1/2" x 11 ga tube in place for the Tongue. Square, weld.
17. Cut two 6" x 1/4" x 2" flat metal for the Hitch.
18. Drill 1/2" holes 1" from the end in the Hitch plates and round the corners. See Fig1.
19. Weld the two 6" x 1/4" x 2" flat metal to the Tongue.
20. Place the wheels in the 2" x 2" x 3/16" angle iron Axle leaving a clearance of 1/2" between the tire and frame. Weld.
21. Place fenders and weld. Finish with primer and enamel paint.
22. Place wood on trailer floor with trailer floor screws.

T-BALL STAND



Fig, 1
Front View

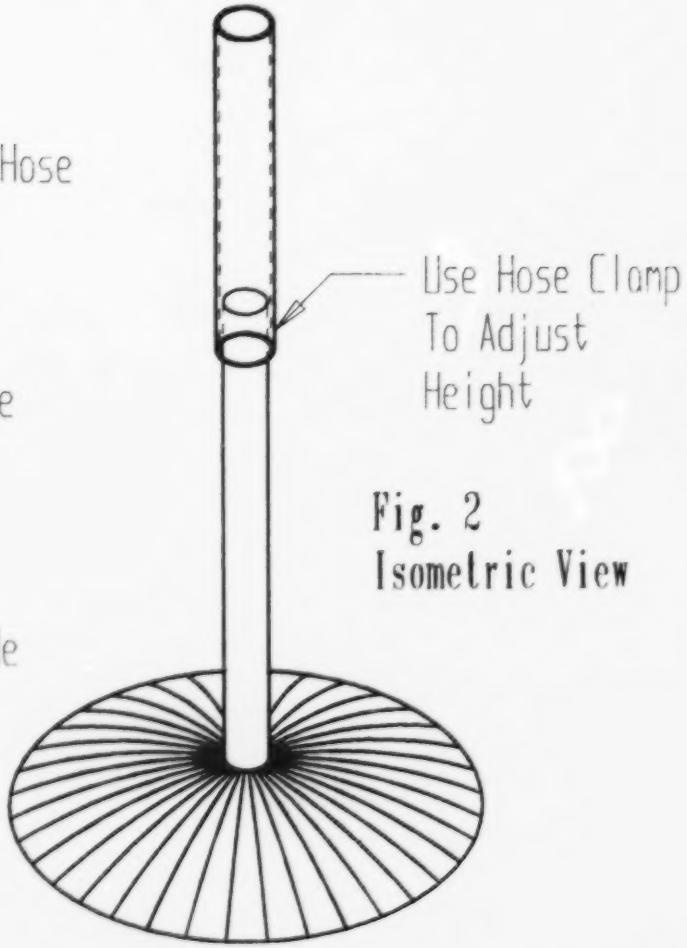


Fig. 2
Isometric View

Design by: MATT BIDDLE

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

T-BALL STAND

BILL OF MATERIALS

19" x 1 1/2" (14-16ga.) OD Tube
13 1/2" x 1 3/4" ID Radiator Hose
1 - Used Disc Blade
1 - 2" Hose Clamp
Metal Primer
Enamel Paint

CUT LIST

1- 19" x 1 1/2" (14-16ga.) OD Tube - Upright
1- 13 1/2" x 1 3/4" ID Radiator Hose
1- 16" Disc Blade - Base

CONSTRUCTION PROCEDURE

1. Obtain used disc blade or other suitable material for the base.
2. Cut 1-1/2" OD Tube to 19" long.
3. Weld tube to center of disc blade using a low hydrogen electrode.
4. Remove weld spatter, use metal primer, and finish with enamel paint.
5. Slip 1-3/4" ID radiator hose over tube, then adjust to height and secure with hose clamp.

DEER STAND

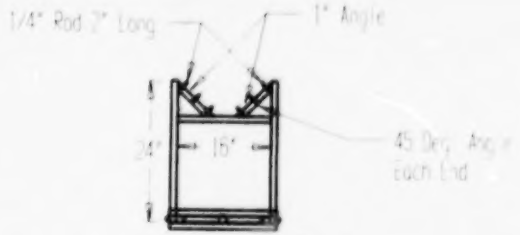


Fig. 1
Top View

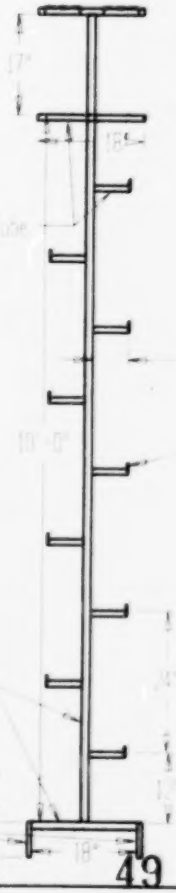


Fig. 2
Front View

Fig. 3
Side View

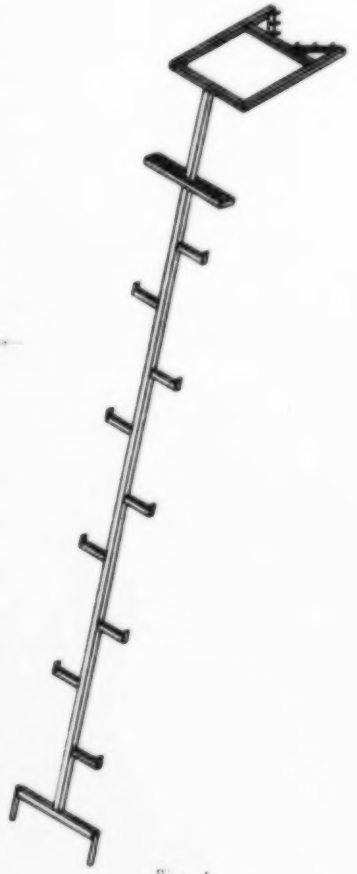


Fig. 4
Isometric View

Drawn By: JOHN HASELHORST	Date: 1/20/1998

DEER STAND

BILL OF MATERIALS

13' x 1 1/4" x 1 1/4" x 14 ga Square Tubing
13'-6" x 1" x 1" x 14 ga Square Tubing
1' x 6" Rod
1' x 1/4" Rod
17" x 1" x 1" x 3/16" Angle Iron
6' x 3/16" Chain
2 - 3/16" S Hooks
1 - 3/16" Turnbuckle
4 - 1/4" x 2" Carriage bolts
18" x 18" x 1/2" CDX Plywood
Metal Primer
Flat Enamel

CUT LIST

1- 11'-5" x 1 1/4" x 1 1/4" x 14ga Tube - Main upright
1- 18" x 1 1/4" x 1 1/4" x 14ga Tube - Base
2- 6" x 3/4" Rod - Bottom prongs
9- 6" x 1" x 1" x 14ga Tube - Steps
9- 2" x 3/16" x 1" Flat Metal- Ends for steps
2- 18" x 1" x 1" x 14ga Tube - Foot platform
2- 3 1/4" x 3/16" x 1" Flat Metal - End caps for foot platform
2- 16" x 1" x 1" x 14ga Tube - Front and back of seat platform
2- 24" x 1" x 1" x 14ga Tube - Sides of seat platform
2- 8 1/2" x 3/16" x 1" x 1" Angle Iron- 45 degree angle at end of seat to fit trees
6- 2" x 1/4" Rod - On top of angle to prevent slipping on tree
2- 3/16" S Hooks - Secure chain to tree stand
1- 6' x 3/16" Chain - Wrap around tree and hook to each side of tree stand
1- 3/16" Turnbuckle - To tighten chain around tree
1- 18" x 18" 1/2" CDX Plywood - Seat platform
4- 1/4" x 2" Carriage bolts - Secure seat to stand

CONSTRUCTION PROCEDURE

1. Weld the 3/4" rods to base and weld to upright.
2. Weld steps to upright 12" O.C. with foot rest as the last step. Place one foot rest tube on each side of main upright, then cap ends with 3 1/4" flat strip.

3. Weld front of seat platform inside the two sides, weld the back of seat platform inside the sides leaving six inches behind it.
4. Weld angle irons at a 45 degree angle from side to back of seat.
5. Weld small rods on top of angle leaving one inch protruding toward the back.
6. Attach seat to main upright at a 15 degree angle.
7. Grind smooth all sharp edges and round corners. Use metal primer and enamel paint.
8. Paint and bolt plywood to seat platform.

Note: If desired a 8" x 1 1/2" x 1 1/2" x 11 ga. Tube may be bolted in the center of the Main Beam. This is used as a coupling, to allow for easier transport and storage.

Warning: Deer stand must be firmly attached to tree during use!
Platform is to be used only in sitting position!
Always use a rope to pull up weapon after being seated on stand.

GROOMING CHUTE

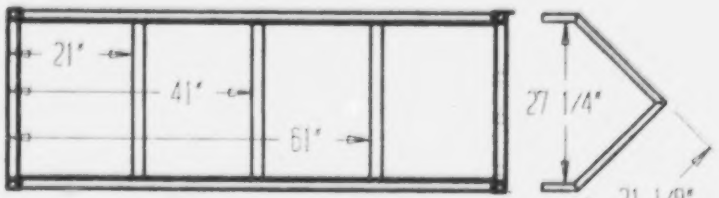


Fig. 1
Top View

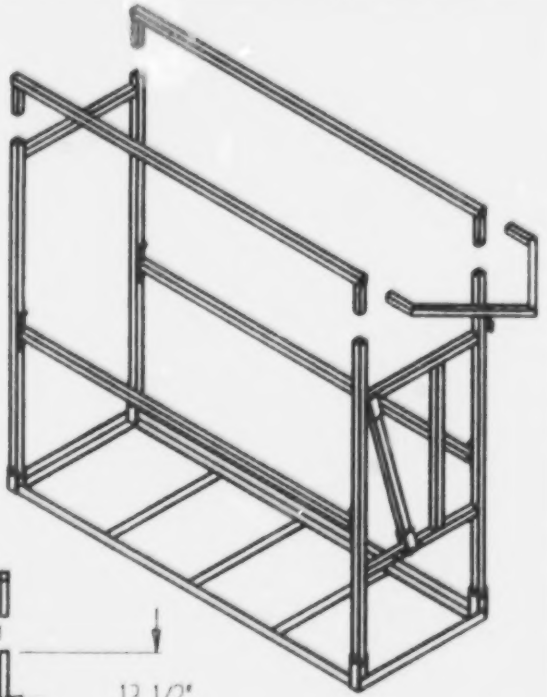


Fig. 4
Isometric View

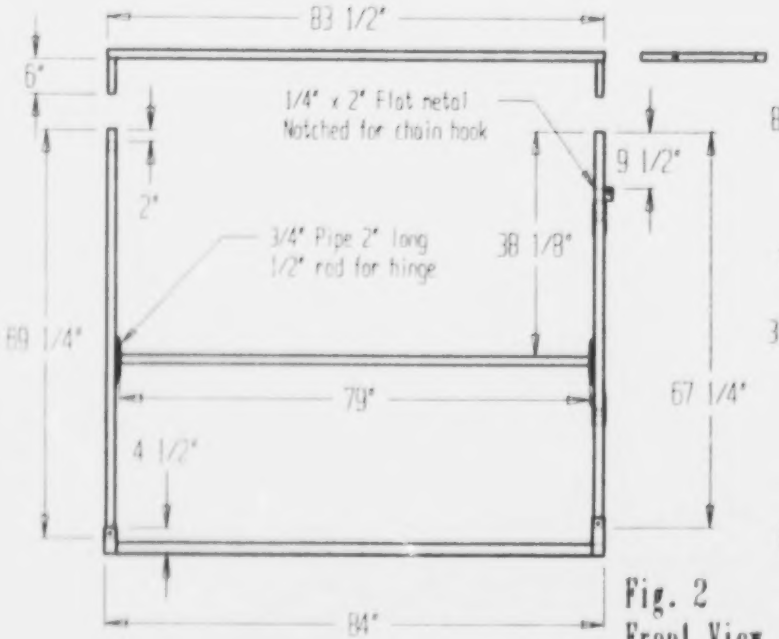


Fig. 2
Front View

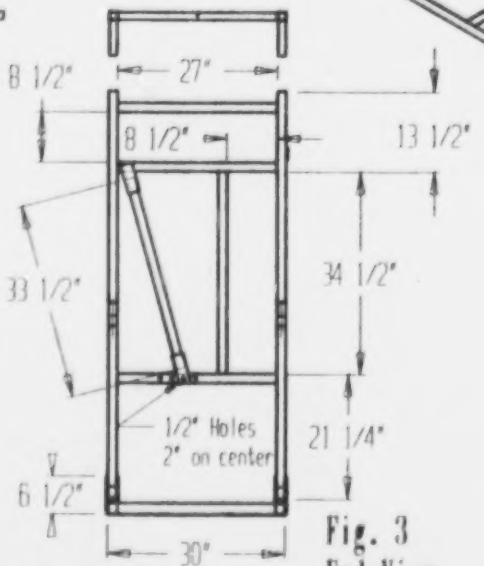


Fig. 3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 2/20/1994

GROOMING CHUTE

BILL OF MATERIALS

19' x 2" x 2" x 1/8" Angle Iron
12'-9" x 2" x 1/4" Flat Metal
62'-3" x 1 1/2" x 1 1/2" x 14 ga. Tube
6'-6" x 1 1/4" x 1 1/4" x 14 ga. Tube
2' x 3/4" Sch. 40 Pipe
40" x 1/2" HRR Rod
3' x 1/4" Chain
5 - 3/8" x 2" Bolts
2 1/2' x 7' x 1/2" CDX Plywood
Primer
Enamel Paint

CUT LIST

2- 84" x 2" x 2" x 1/8" Angle Iron - Base
2- 30" x 2" x 2" x 1/8" Angle Iron - Base ends
3- 26" x 1/4" x 2" Flat Metal - Floor supports
4- 7" x 1/4" x 2" Flat Metal - Head catch hinge
4- 4 1/2" x 1/4" x 2" Flat Metal - Rear hinge
4- 6" x 1/4" x 2" Flat Metal - Head catch pivots and slides
1- 5" x 1/4" x 2" Flat Metal - Chain latch
2- 67 1/4" x 1 1/2" x 1 1/2" x 14 ga. Tube - Head catch frame
3- 27" x 1 1/2" x 1 1/2" x 14 ga. Tube - Cross bars
1- 34 1/2" x 1 1/2" x 1 1/2" x 14 ga. Tube - Stationary head bar
1- 33 1/2" x 1 1/2" x 1 1/2" x 14 ga. Tube - Head catch bar
2- 69 1/4" x 1 1/2" x 1 1/2" x 14 ga. Tube - Rear uprights
2- 79" x 1 1/2" x 1 1/2" x 14 ga. Tube - Side bars
2- 83 1/2" x 1 1/2" x 1 1/2" x 14 ga. Tube -Top rails
6- 6" x 1 1/4" x 1 1/4" x 14 ga. Tube - Top rail pins
2- 21 1/8" 1 1/4" x 1 1/4" x 14 ga. Tube - Head tie
12- 2" x 3/4" Sch. 40 Pipe -Side rail hinge
4- 8" x 1/2" HRR Rod - Side rail pins
4- 2" x 1/2" HRR Rod - Side rail pin keepers

CONSTRUCTION PROCEDURE

BASE

1. Cut two 84" x 2" x 2" x 1/8" angle iron to 45 degree on each end for Base.
2. Cut two 30" x 2" x 2" x 1/8" angle iron to 45 degree on each end for Base ends.
3. Cut three 26" x 1/4" x 2" flat metal for Base floor support.
4. Cut four 7" x 1/4" x 2" flat metal for Head Catch Hinge.
5. Cut four 4 1/2" x 1/4" x 2" flat metal for Rear Hinge.
6. Drill holes shown in fig 2 in Hinges.
7. Weld the Base, Base Ends, Floor Supports, and all Hinges as shown in Fig. 1.

HEADGATE

1. Cut four 6" x 1/4" x 2" flat metal for Head Catch pivots and slides. See Fig 3.
2. Cut one 5" x 1/4" x 2" flat metal for the Chain Latch, upper right on Hdgate. See Fig. 4
3. Cut two 67 1/4" x 1 1/2" x 1 1/2" x 14ga tube for Head Catch frame.
4. Cut three 27" x 1 1/2" x 1 1/2" x 14ga tube for the Cross Bars
5. Cut one 34 1/2" x 1 1/2" x 1 1/2" x 14ga tube for the Stationary Head Bar.
6. Cut one 33 1/2" x 1 1/2" x 1 1/2" x 14ga tube for the Head Catch Slide Bar.
7. Drill a series of holes 2" on center in one 27" x 1 1/2" x 1 1/2" x 14ga Cross Bar for the adjustments of Head Catch Slide Bar.
8. Tack Head Gate assembly together as in Fig. 3. Check with Square and weld.
9. Use a spacer between the Base Frame and the bottom of the Head Gate while setting inside Hinges. Center, mark, and drill holes so Hdgate swings down for storage or transport.

REAR GATE

1. Cut two 69 1/4" x 1 1/2" x 1 1/2" x 14ga tube for Rear Uprights. See Fig 4.
2. Tack one 27" x 1 1/2" x 1 1/2" x 14ga tube to space Rear Uprights and set in base to center, mark, and drill holes. Check freedom of movement, then complete weld.

SIDES AND TOP

1. Cut two 79" x 1 1/2" x 1 1/2" x 14ga tube for Side Rails.
2. Cut twelve 2" x 3/4" Schedule 40 pipe for Side Rail hinges.
3. Cut four 8" x 1/2" HRR rod for Side Rail pins.
4. Cut and weld four 2" x 1/2" HRR rod to tops of each Side Rail pin.
5. Space pipe Side Rail hinges, align, and tack to Head Gate and Rear Gate.
6. Align pipe hinges to Side Rails. Check alignment to Head Gate and Rear Gate.
7. Weld all hinges.
8. Cut two 83 1/2" x 1 1/2" x 1 1/2" x 14ga tube for the Top Rails.
9. Cut six 6" x 1 1/4" x 1 1/4" x 14ga tube for Top Rail pins and Head holder.
10. Align & fit into Head & Rear gate, tack, and weld four pins to the Top Rails.
11. Cut two 21 1/8" x 1 1/4" x 1 1/4" x 14ga tube for the Head Tie. One end is 45 degrees and the other end is 22 1/2 degrees.
12. Weld the two 6" x 1 1/4" x 1 1/4" x 14ga tube to the Head Tie.
13. Cut and fit a 2 1/2' x 7' x 1/2" CDX Plywood to the floor.
14. Grind all sharp edges smooth, round off corners, remove weld spatter, use metal primer and finish with enamel paint.

BOOT SCRAPER

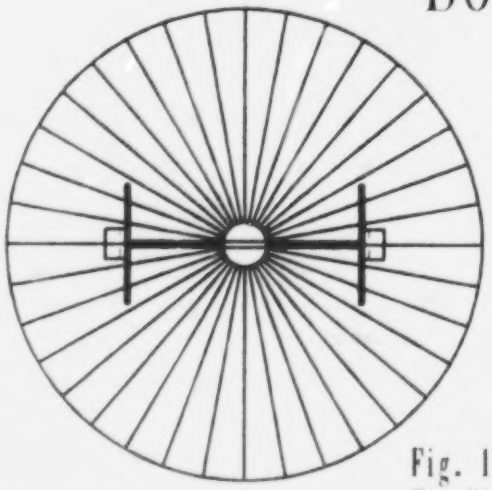


Fig. 1
Top View

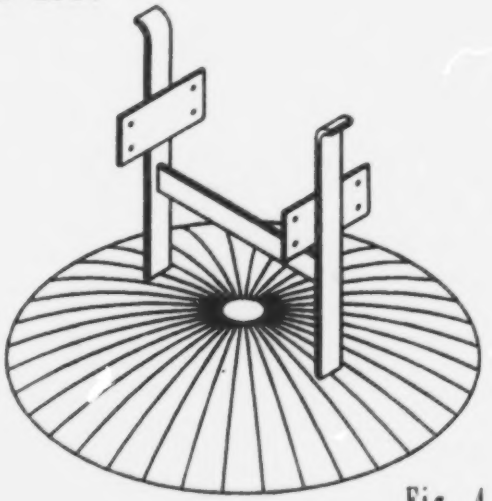


Fig. 4
Isometric View

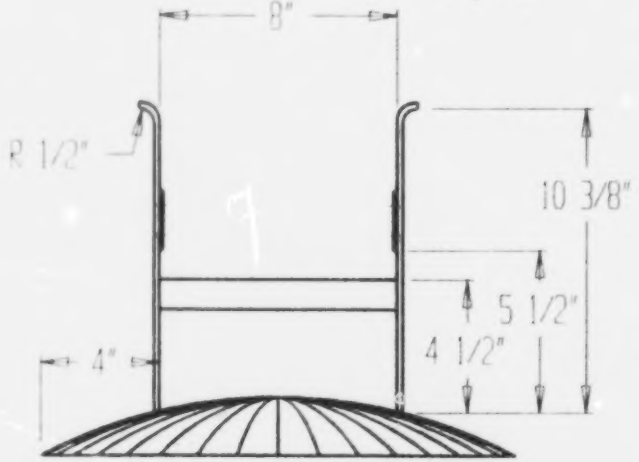


Fig. 2
Front View

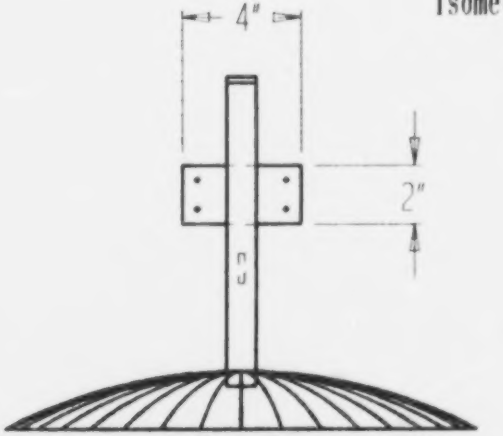


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 2/20/1994

BOOT SCRAPER

BILL OF MATERIALS

30" x 3/16" x 1" Flat Metal
8" x 1/8" x 2" Flat Metal
1 - Used 16" Disc Blade
2 - Brushes
8 - 1/2" Wood screws
Primer
Enamel Paint

CUT LIST

2- 11" x 3/16" x 1" Flat Metal - Uprights
1- 8" x 3/16" x 1" Flat Metal - Cross scraper
2- 4" x 1/8" x 2" Flat Metal - Brush holders

CONSTRUCTION PROCEDURE

1. Locate one used disc blade or other suitable material.
2. Cut two 4" x 1/8" x 2" Brush holders.
3. Drill four 1/8" holes in each Brush holder.
4. Cut two 11" x 3/16" x 1" Uprights and turn to radius of 1/2".
5. Cut one 8" x 3/16" x 1" Cross scraper.
6. Weld Brush holders to the Uprights.
7. Weld Cross scraper to the Uprights.
8. Place and weld on disc blade.
10. Clean weld spatter, prime metal, and paint with enamel.
11. Note: Change spacing for brush width.

CAR RAMP

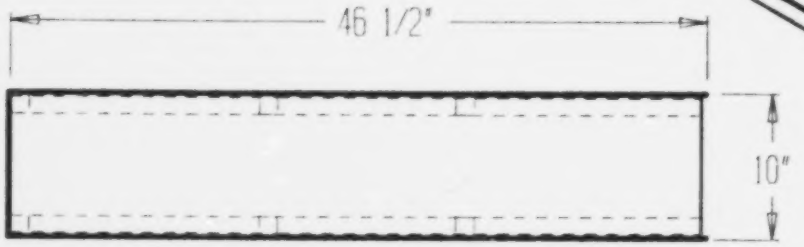


Fig. 1
Top View

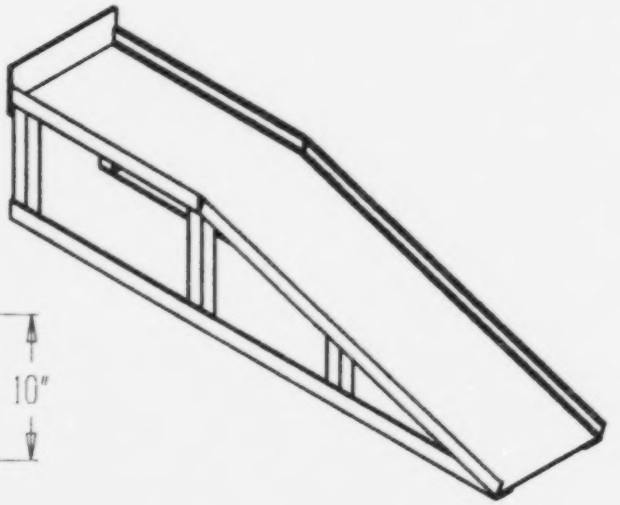


Fig. 4
Isometric View

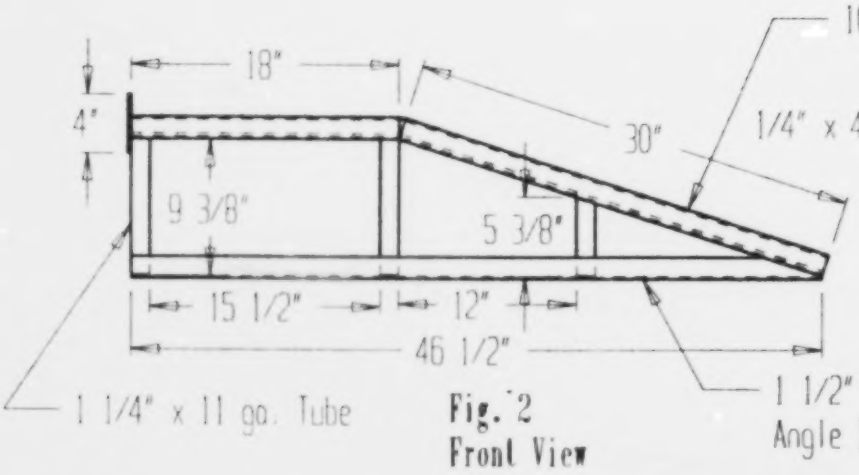


Fig. 2
Front View

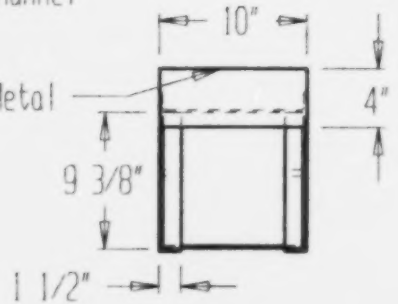


Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 4/20/1994

CAR RAMP

BILL OF MATERIALS*

8' x 10" Jr. Channel
11' x 1 1/4" x 1 1/4" x 11ga Tube
20" x 1/4" x 4" Flat Metal
15'-6" x 1 1/2" x 1 1/2" x 1/4" Angle Iron
Primer
Enamel Paint

CUT LIST*

2-48" x 10" Jr. Channel - top and ramp
8-9 3/8" x 1 1/4" x 11ga. Tube - legs
4-5 3/8" x 1 1/4" x 11ga. Tube - brace under ramp
4-46 1/2" x 1 1/2" x 1 1/2" x 1/4" Angle Iron - runners
2-10" x 1/4" x 4" Flat Metal - end stops

CONSTRUCTION PROCEDURE

1. Cut two 46 1/2" x 1 1/2" x 1 1/2" x 1/4" angle iron.
2. Cut four 9 3/8" x 1 1/4" x 1 1/4" x 11 ga. tube.
3. Weld each of the 9 3/8" x 1 1/4" x 1 1/4" x 11 ga. tubes as shown in fig. 2.
4. Cut one 48" x 10" Jr. channel.
5. Notch the flanges of the 10" Jr. channel 18" from the end. See fig. 2.
6. Position the Base Structure on the 10" Jr. channel and weld.
   Note: You are determining the finished position of the Jr. channel meeting with the angle iron Base Structure.
7. Bend the 10" Jr. channel down to meet the angle iron and weld. Cut gussets to fill gaps.
8. Cut two 5 3/8" x 1 1/4" x 1 1/4" tube, position, and weld in place.
9. Cut one 10" x 1/4" x 4" flat metal for stop and weld in place. See fig. 3.
10. Smooth all rough edges, prime the metal and finish with enamel paint.
11. Repeat steps to build second ramp.

* Includes materials needed to build a pair of ramps.

BALE SPIKE

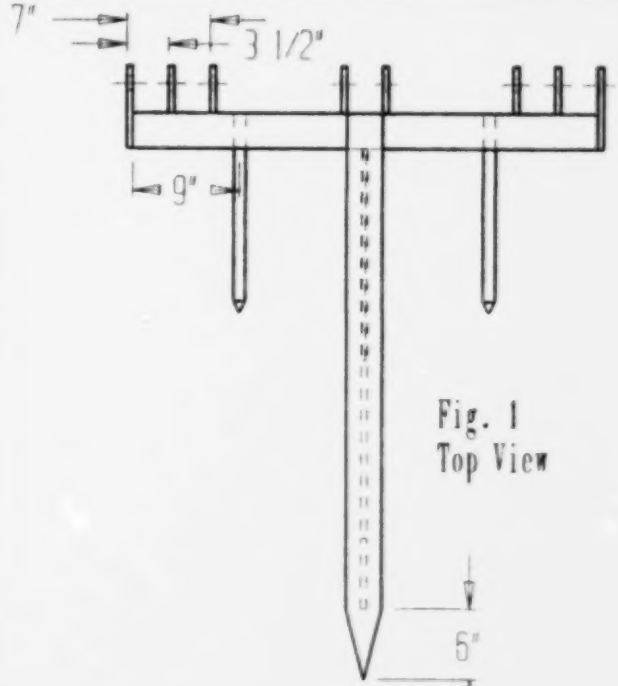


Fig. 1
Top View

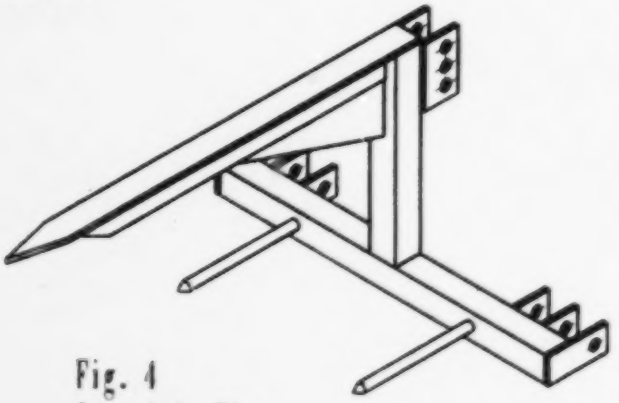


Fig. 4
Isometric View

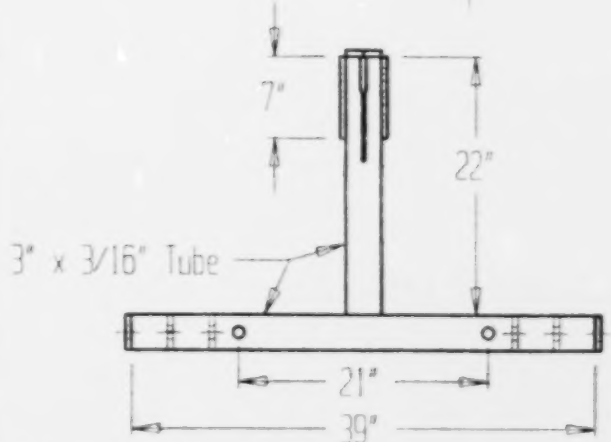


Fig. 2
Front View

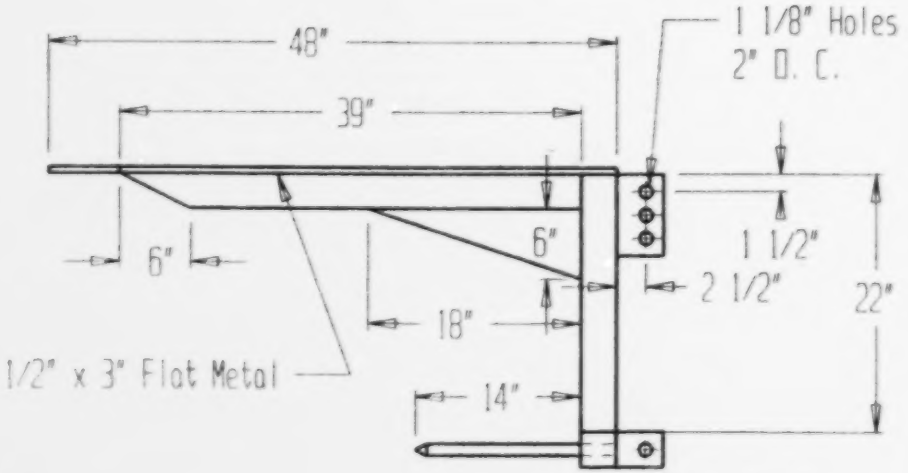


Fig. 3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 2/20/1994

BALE SPIKE

BILL OF MATERIALS

10' x 1/2" x 3" Flat metal
61" x 3" x 3" x 3/16" Tube
34" x 1" CRR Rod
Primer
Enamel Paint

CUT LIST

1- 48" x 1/2" x 3" Flat Metal - Spike
1- 39" x 1/2" x 3" Flat Metal - Spike support
2- 7" x 1/2" x 3" Flat Metal - End Caps
4- 4" x 1/2" x 3" Flat Metal - Lower hitch brackets
2- 7" x 1/2" x 4" Flat Metal - Upper third point
2- 17" x 1" CRR Rod - Bale stabilizers
1- 18" x 6" x 1/4" Gusset - Spike brace
1- 39" x 3" x 3" x 3/16" Tube - Base Member
1- 22" x 3" x 3" x 3/16" Tube - Upright

CONSTRUCTION PROCEDURE

1. Cut four 4" x 1/2" x 3" pieces and drill all 1 1/8" holes as shown in fig. 3. Hint: use center punch to mark centers and drill pilot holes.
2. Cut two 7" x 1/2" x 3" End Caps and drill 1 1/8" holes.
3. Cut two 7" x 1/2" x 4" for Upper Third Point and drill three1 1/8" holes that are 2" O.C.
4. Cut one 39" x 3" x 3" x 3/16" tube for the Base Member.
5. Cut one 22" x 3" x 3" x 3/16" tube for the Upright Member.
6. Drill two holes in the Base Member 21" apart and 9" from ends for the two Bale Stabilizers. See fig. 2 .
7. Cut two 17" x 1" CRR rod.
8. Weld the two 7" x 1/2" x 3" End Caps to the 39" Base Member and align the four 4" x 1/2" x 3" pieces leaving 3" as shown in fig. 1 between them. Hint: Use a rod through holes to align all parts.
9. Weld the two 7" x 1/2" x 4" to the Upright.
10. Weld the Upright to the Base Member.
11. Weld the two Bale Stabilizers to the Base Member on both sides of the tube.
12. Cut one 48" x 1/2" x 3" for the Spike then taper end back 6" on two edges.
13. Cut one 39" x 1/2" x 3" for the Spike support then taper 6".
14. Cut one 18" x 6" x 1/4" Gusset for the Spike brace.
15. Weld Spike support to the Spike leaving 3" to cap end of Upright.
16. Weld the Spike to the tube frame.
17. Weld the Gusset in place.
18. Grind all sharp edges smooth, round off corners, remove weld spatter, use metal primer, and finish with enamel paint.

CAN CRUSHER

Fig. 1
Top View

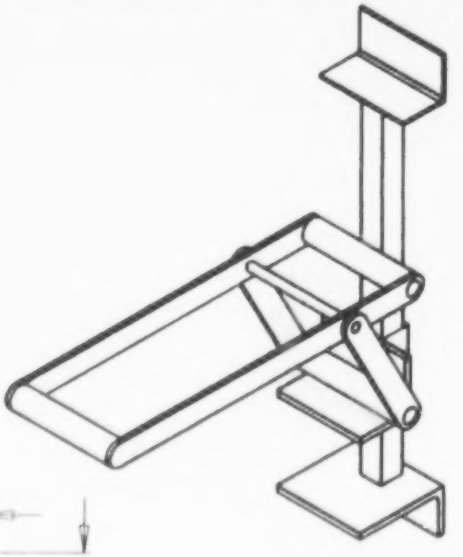


Fig. 4
Isometric View

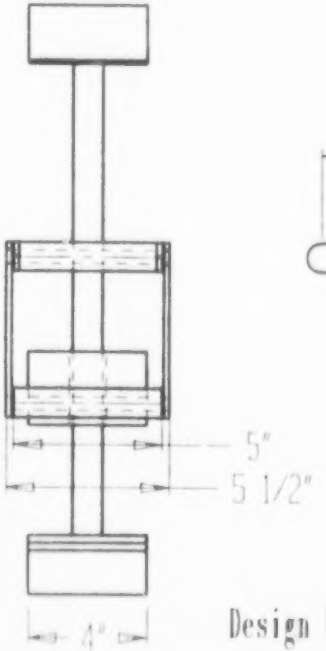


Fig. 2
Front View

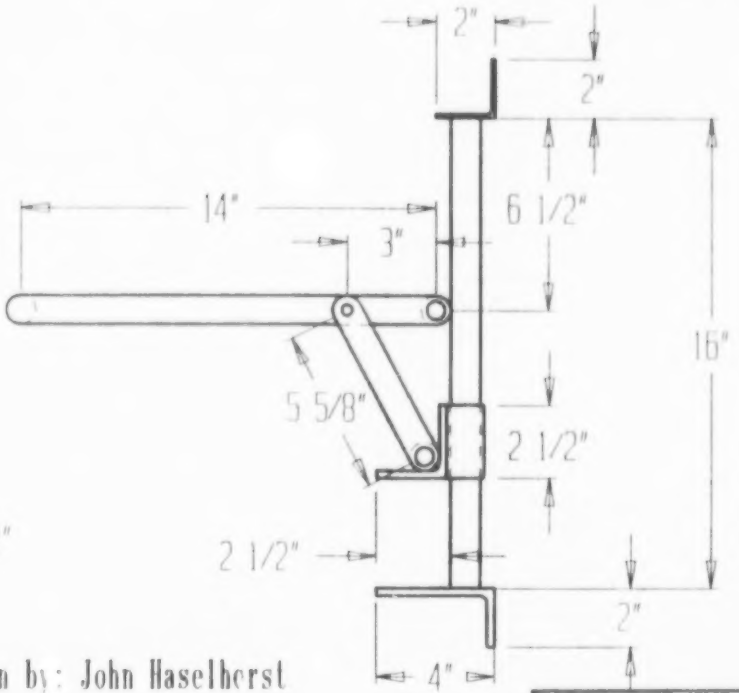


Fig. 3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 4/20/1994

CAN CRUSHER

BILL OF MATERIALS

4" x 2" x 4" x 1/4" Angle Iron
4" x 2 1/2" x 2 1/2" x 1/4" Angle Iron
4" x 2" x 2" x 1/8" Angle Iron
16" x 1" x 1" x 14 ga. Tube
2 1/2" x 1 1/4" x 1 1/4" x 14 ga. Tube
15" x 3/4" Sch 40 Pipe
11" x 5/8" Rod
5 1/2" x 3/8" Rod
44" x 3/16" x 1" Flat Metal
Primer, Enamel Paint

CUT LIST

1-4" x 2" x 4" x 1/4" Angle Iron - base wall mount
1-4" x 2" x 2" x 1/8" Angle Iron - top wall mount
1-16" x 1" x 1" x 14 ga. Tube - beam
1-2 1/2" x 1 1/4" x 1 1/4" x 14 ga. Tube - slide
1-4" x 2 1/2" x 2 1/2" x 1/4" Angle Iron - compressor
1-5 1/2" x 5/8" Rod - pivot on compressor
1-5" x 3/4" Sch. 40 Pipe - hinge on compressor
1-5" x 5/8" Rod - pivot on beam
2- 4 1/2" x 3/4" Sch. 40 Pipe - hinge on beam and handle
1- 5 1/2" x 3/8" Rod - fulcrum point in lever
2-6 5/8" x 3/16" x 1" Flat Metal - compressor arms
2-15" x 3/16" x 1" Flat Metal - lever arms

CONSTRUCTION PROCEDURE

1. Cut one each of 2" x 4" x 1/4"; 2" x 2" x 1/8"; and 2 1/2" x 2 1/2" x 1/4" angle iron 4" long.
2. Cut one 16" x 1" x 1" x 14 ga tube and one 2 1/2" x 1 1/4" x 1 1/4" x 14 ga tube.
3. Weld the 4" x 2 1/2" x 2 1/2" x 1/4" angle iron to the 2 1/2" x 1 1/4" x 1 1/4" x 14 ga tube.
4. Slide the Compressor on the 16" x 1" x 1" x 14 ga tube, weld the 4" x 2" x 2" x 1/8" angle iron for the top, and weld the 4" x 2" x 4" x 1/4" angle iron Base.

Note: Make sure the Slide Compressor matches direction of angle iron on Base and Top. Set the Beam in 3/8" from back of angle iron for wall and Slide clearance. Fig 3.

5. Cut two 6 5/8" x 3/16" x 1" flat metal for Compression Arms.
6. Cut two 15" x 3/16" x 1" flat metal for Lever Arms.
7. Cut two 4 1/2" x 3/4" sch 40 pipe for Hinge on Beam and Handle.
8. Cut one 5" x 5/8" rod for Pivot on Beam and cut one 5 1/2" x 5/8" rod for Pivot on Compressor.

9. Cut one 5 1/2" x 3/8" rod for the Fulcrum Point.
10. Drill 5/8" holes in the 15" x 3/16" x 1" Lever Arms 1/2" from the end.
11. Drill 3/8" holes in the 15" x 3/16" x 1" Lever Arms 3 1/2" from the same end.
12. Weld the one 4 1/2" x 3/4" sch 40 pipe in place on the opposite end of the drilled holes between the two 15" x 3/16" x 1" flat metal.
13. Put the 5" x 5/8" rod through the 4 1/2" pipe sleeve and drilled holes. Weld the outside ends of the rod.
14. Drill the 3/8" holes in the 6 5/8" x 3/16" x 1" flat metal 1/2" from the end and also the 5/8" holes on the other end.
15. Cut one 5" x 3/4" sch 40 pipe for the Compressor Hinge.
16. Assemble the Compression Arms to the Lever Arms by inserting the 5 1/2" x 3/8" rod and slip the 5" x 5/8" rod through the 4 1/2" x 3/4" pipe sleeve. Check freedom of movement. Weld the 5 1/2" x 3/8" rod on the outside of Compression Arms and also the 5" x 5/8" rod. Note: Do <u>not</u> weld the pipe sleeve.
17. Weld the Lever Arm Assembly 6 1/2" from the Top and move Slide up and weld the Compressor Assembly to Slide.
18. Grind all welded rod assembly flush for freedom of movement, round all sharp edges, prime metal and finish with enamel paint.

POST DRIVER

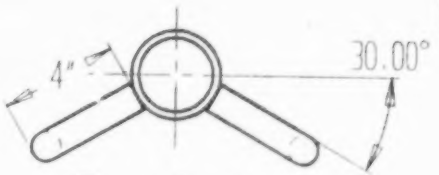


Fig. 1 Top View

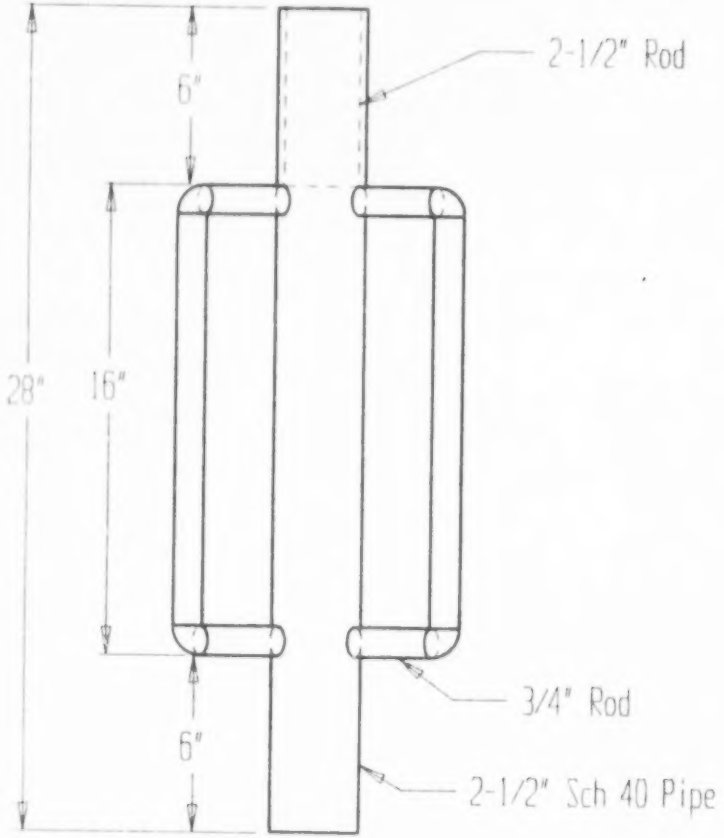


Fig. 2 Front View

Fig. 3 End View

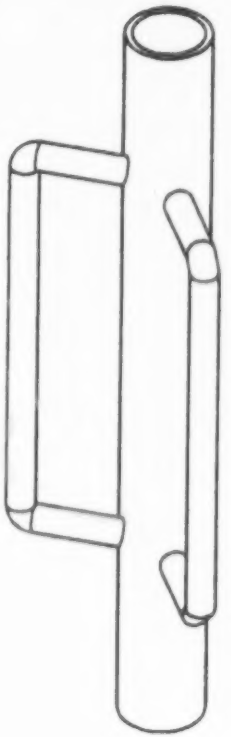


Fig. 4
Isometric View

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

POST DRIVER

BILL OF MATERIALS

28" x 2 1/2" Sch 40 Pipe
48" x 3/4" Rod
6" x 2 1/2" Rod
Metal Primer
Enamel Paint

CUT LIST

1- 28" x 2 1/2" Sch 40 Pipe
2- 24" x 3/4" Rod - Handles
1- 6" x 2 1/2" Rod - End plug

CONSTRUCTION PROCEDURE

1. Cut 2 1/2" sch. 40 pipe 28" long.
2. Cut 2 1/2" rod to 6" length to construct the plug.
3. Weld plug in end.
4. Cut two 3/4" Rod to 24" length.
5. Bend 90 degree corners 4" from ends as shown in figure 2.
6. Weld to main pipe 30 degrees from axis as shown in figure 1.
7. Grind all sharp edges smooth and remove weld spatter.
8. Use metal primer and paint with enamel.

WOOD RACK - WINTER
HAMMOCK HOLDER - SUMMER

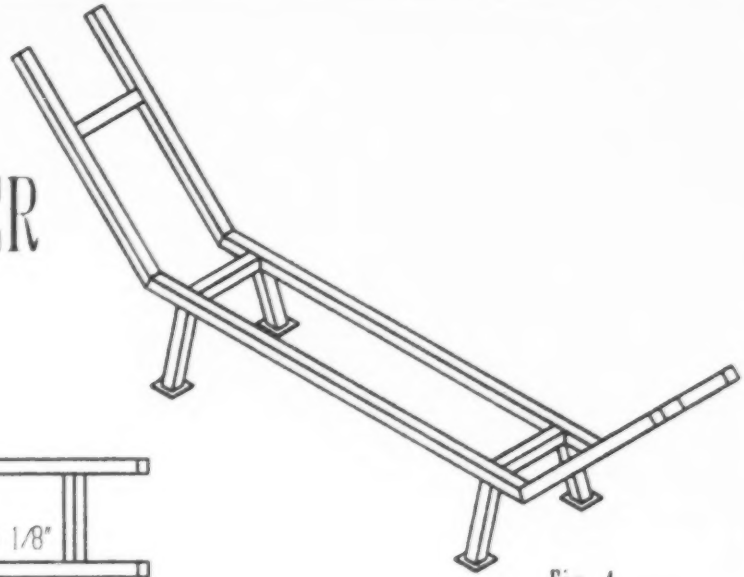


Fig. 4
Isometric View

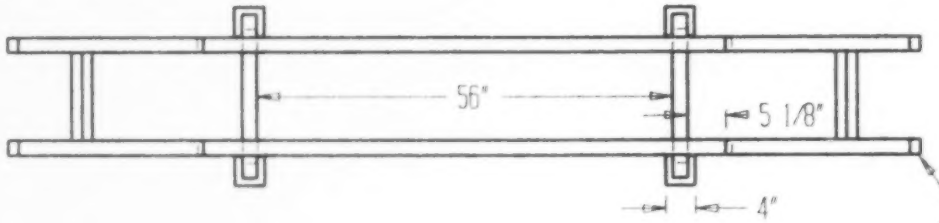


Fig. 1
Top View

Cap all open ends
1 3/4" x 1 3/4" x 1/8" Flat metal

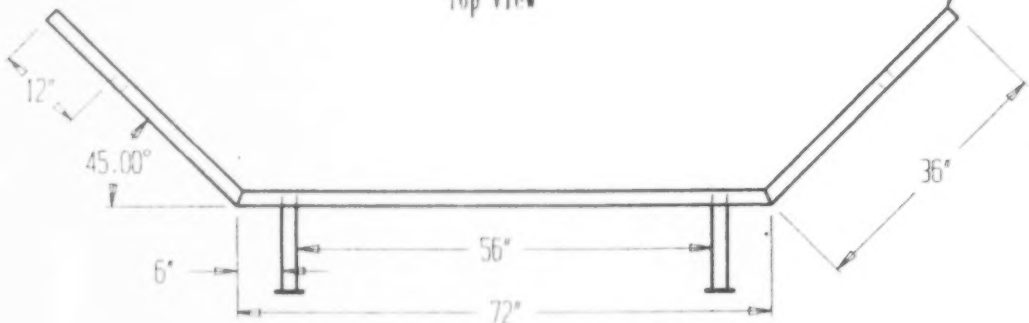


Fig. 2
Front View

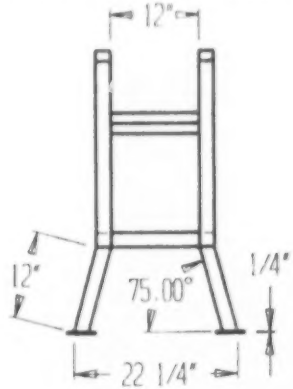


Fig. 3
End View

Design by: Bob Sellmeyer

DRAWN BY: JOHN HASELHORST	DATE: 3/20/1994

WOOD RACK

BILL OF MATERIALS

32' x 2" x 2" x 14ga. Tubing
16" x 1/4" x 4" Flat Metal
8" x 1/8" x 1 3/4" Flat Metal
Enamel Paint
Metal Primer

CUT LIST

2- 72" x 2" x 2" x 14 ga. Tube - Base members
4- 36" x 2" x 2" x 14 ga. Tube - Ends
4- 12" x 2" x 2" x 14 ga. Tube - Cross members
4- 12" x 2" x 2" x 14 ga. Tube - Legs
4- 4" x 1/4" x 4" Flat Metal - Feet
4- 1 3/4" x 1/8" x 1 3/4" Flat Metal - End caps

CONSTRUCTION PROCEDURE

1. Cut two 72" x 2" x 2" x 14ga. tube for the Base members with a 22 1/2 degree angle.
2. Cut four 36" x 2" x 2" x 14ga. tube for the Ends with a 22 1/2 degree angle. See fig. 2.
3. Cut four 12" x 2" x 2" x 14ga. tube for the Cross members shown in fig. 1.
4. Cut four 12" x 2" x 2" x 14ga. tube for the Legs at 75 degrees on both ends.
5. Cut four 4" x 1/4" x 4" flat metal for the Feet.
6. Weld each Base member and the Ends together.
7. Weld the Cross members between the Base members and Ends. See fig. 1. Check spacing of the Cross members.
8. Weld the four legs in place and then weld the flat metal Feet to the legs.
9. Cut four 1 3/4" x 1/8" x 1 3/4" flat metal and weld caps on all open ends. See fig. 1 and fig. 2.
10. Remove all weld spatter, grind sharp edges smooth, use metal primer, and paint with enamel paint.

IMPLEMENT MOVER

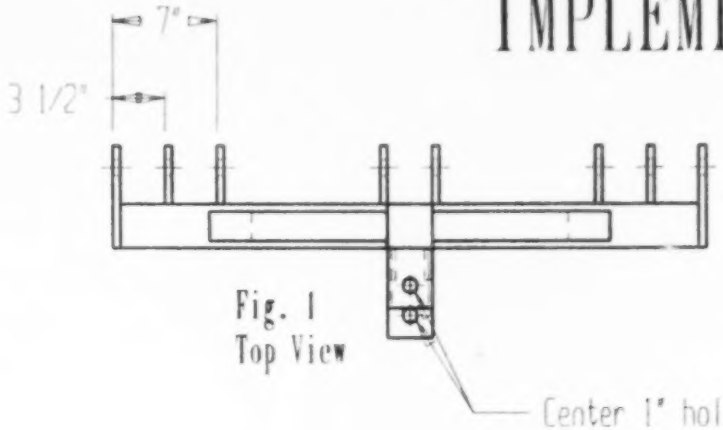


Fig. 1
Top View

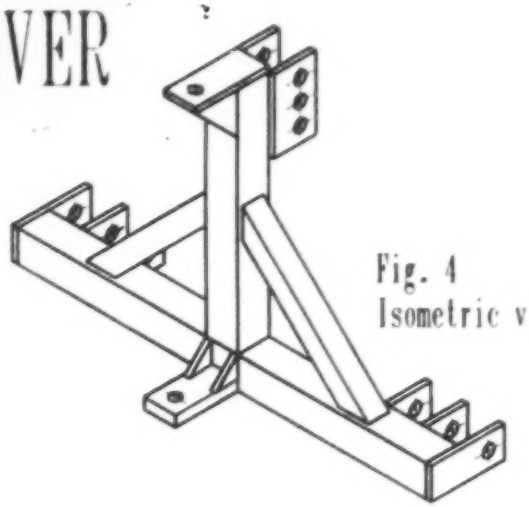


Fig. 4
Isometric view

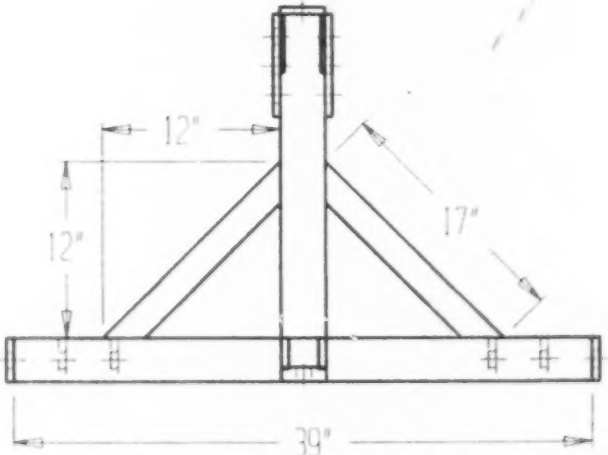


Fig. 2
Front View

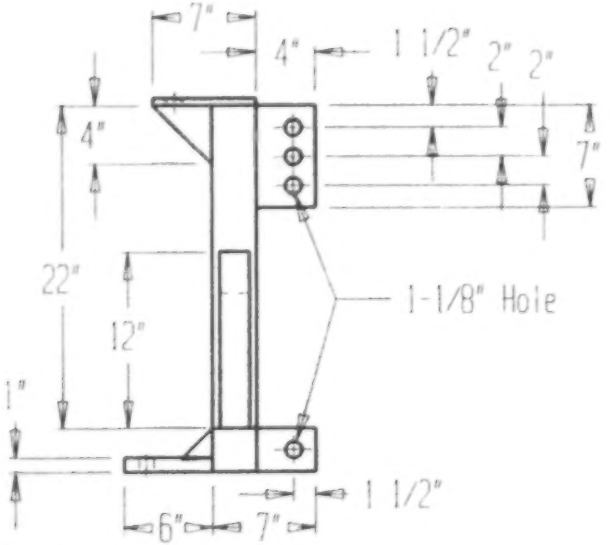


Fig. 3
End View

Design by: John Haselhorst

DRAWN BY: JOHN HASELHORST	DATE: 1/20/1994

IMPLEMENT MOVER

BILL OF MATERIALS

61" x 3" x 3" 3/16" Tube
34" x 2" x 2" 11 ga Tube
37" x 1/2" x 3" Flat metal
14" x 1/2" x 4" Flat metal
6" x 1" x 3" Flat metal
2" x 1/2" x 2" Flat metal
4" x 1/4" x 4" Flat metal
Metal Primer
Enamel Paint

CUT LIST

1- 39" x 3" x 3" x 3/16" Tube - Base member
1- 22" x 3" x 3" x 3/16" Tube - Upright
2- 17" x 2" x 2" x 11 ga. Tube - Diagonal braces
3- 7" x 1/2" x 3" Flat Metal - End caps
4- 4" x 1/2" x 3" Flat Metal - Lower hitch brackets
2- 7" x 1/2" x 4" Flat Metal - Upper third point
1- 6" x 1" x 3" Flat Metal - Drawbar hitch
2- 2 1/2" Gussets - Brace for lower hitch
2- 4 1/4" Gussets - Supports for gooseneck hitch

CONSTRUCTION PROCEDURE

1. Cut all 3" x 1/2" x 3" pieces and drill all 1 1/8" in fig. 3 (3 pt.) & 1" (imp) holes(fig. 1)
2. Cut 3" x 3" x 3/16" tube to 39" & 22".
3. Weld 7" x 1/2" x 3" end caps to 39" piece and align 4" x 1/2" x 3" pieces leaving 3" between them (fig. 2). Hint: Use a rod through holes to align all parts.
4. Weld 1/2" x 4" x 7" to outside corners of upright leaving 3" between them.
5. Cut and weld 2" x 2" x 11 ga tube braces in place as shown in fig. 2.
6. Weld drawbar hitch (lower) and gooseneck hitch (upper) with gussets as shown in fig. 3.
7. Grind all sharp edges smooth, round off corners, remove weld spatter, use metal primer and finish with enamel paint.

SHOW PANEL

Fig. 1
Top View

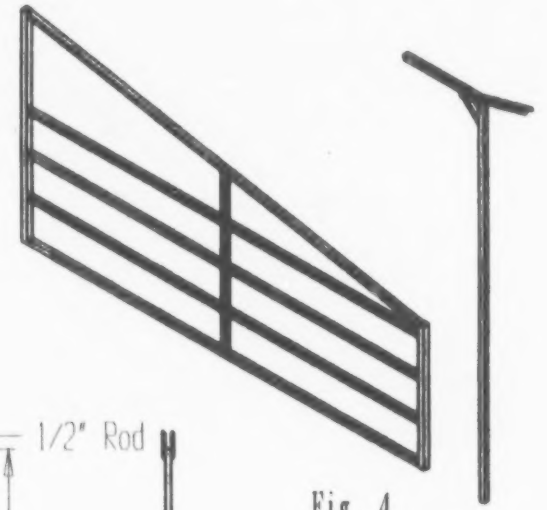


Fig. 4
Isometric View

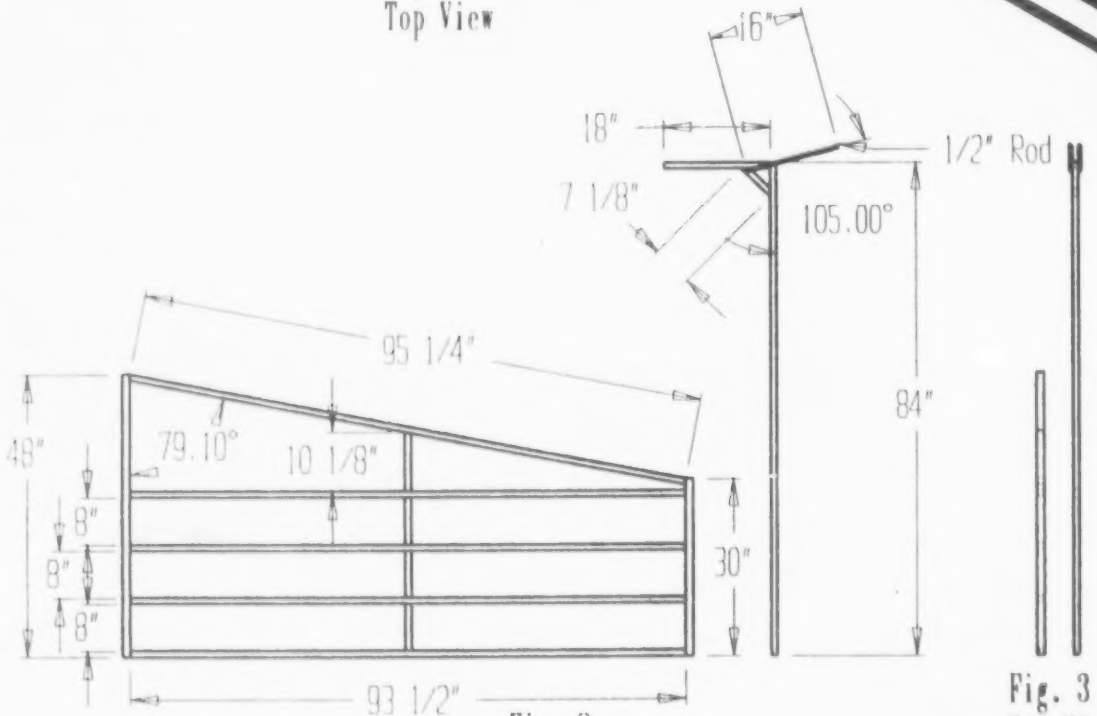


Fig. 2
Front View

Fig. 3
End View

DRAWN BY: JOHN HASELHORST	DATE: 2/20/1994

SHOW PANEL

BILL OF MATERIALS

6'-6" x 1 1/4" x 1 1/4" 14 ga. Tube
51' x 1" x 1" 14 ga. Tube
32" x 1/2" HRR Rod
Primer
Enamel Paint

CUT LIST

1- 48" x 1 1/4" x 14 ga. Tube - End
1- 30" x 1 1/4" x 14 ga. Tube - End
4- 93" x 1" x 14 ga. Tube - Cross bars
1- 95 1/4" x 1" x 14 ga. Tube - Top bar
3- 8" x 1" x 14 ga. Tube - Spacers
1- 10 1/8" x 1" x 14 ga. Tube - Upper spacer
1- 84" x 1" x 14 ga. Tube - Sign post
1- 18" x 1" x 14 ga. Tube - Sign holder
1- 7 1/8" x 1" x 14 ga. Tube - Brace for sign
2- 16" x 1/2" HRR Rod - Broom and fork rack

CONSTRUCTION PROCEDURE

1. Cut four 93" x 1" x 14ga. tube for the cross bars.
2. Cut one 95" x 1" x 14ga. tube for the top bar.
3. Cut one 48" x 1 1/4" x 14ga. tube for the end bar.
4. Cut one 30" x 1 1/4" x 14ga. tube for the end bar.
5. Cut three 8" x 1" x 14ga. tube for the spacers.
6. Cut one 10 1/8" x 1 x 14ga. tube for the upper space.
7. Lay out the above pieces according to fig. 2, tack, then weld.
8. Sign post slips into the 30" x 1 1/4" end and also doubles as broom and fork rack.
9. Cut one 84" x 1" x 14ga. tube sign post.
10. Cut one 18" x 1" x 14ga. tube sign holder.
11. Cut one 7 1/8" x 1" x 14ga. tube with 45 degrees for brace.
12. Cut two 16" x 1/2" HRR rod for broom and fork rack.
13. Assemble sign post as shown in fig. 2, tack, then weld.
14. Remove weld spatter, grind all sharp edges, use metal primer, and finish with enamel paint.

"T" POST PULLER

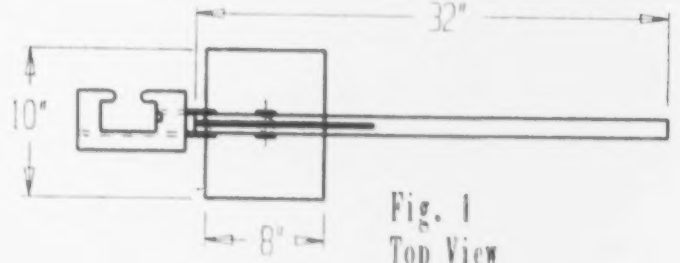


Fig. 1
Top View

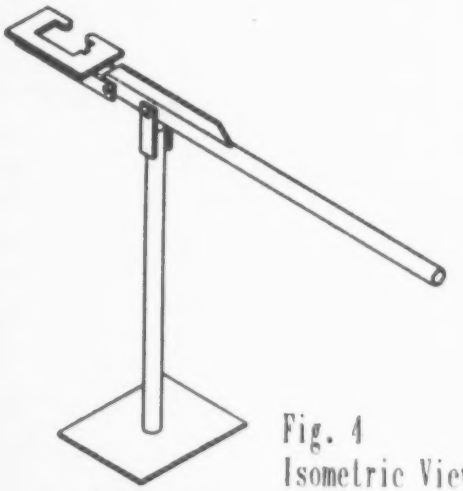


Fig. 4
Isometric View

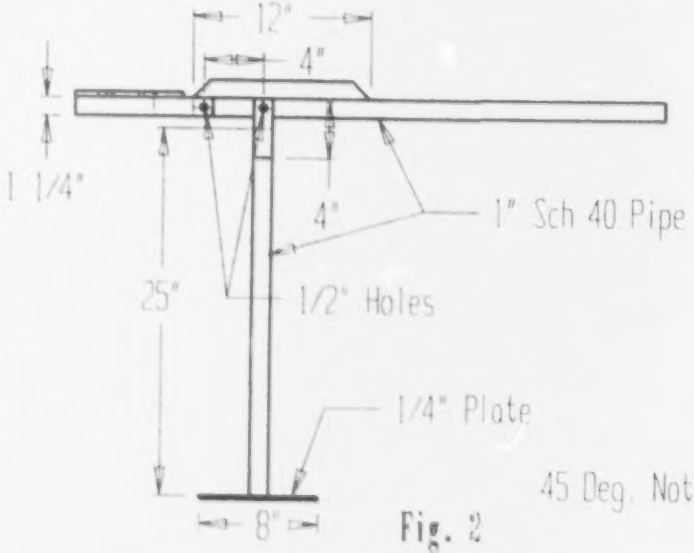


Fig. 2
Front View

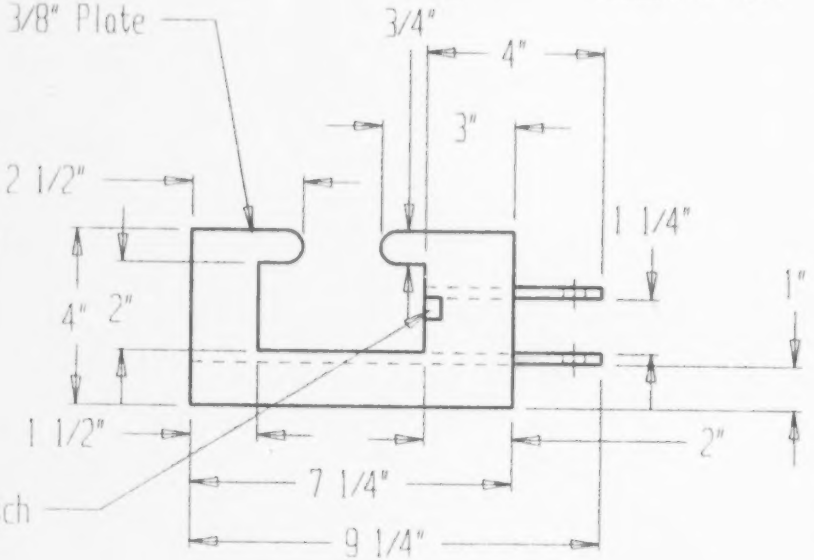


Fig. 3

Design by: Frank Cadwell

DRAWN BY: JOHN HASELHORST	DATE: 4/20/1994

T POST PULLER

BILL OF MATERIALS

8" x 10" x 1/4" Plate
7 1/4" 3/8" x 4" Flat Metal
3' x 1/4" x 1 1/4" Flat Metal
5' x 1" sch. 40 Pipe
2 - 2 1/2" x 1/2" Bolts
Primer
Paint

CUT LIST

1-7 1/4" x 3/8" x 4" Flat Metal - plate to hold post
1-4" x 1/4" x 1 1/4" Flat Metal - brace
1-9 1/4" x 1/4" x 1 1/4' Flat Metal - support to hold post
1-1/4" x 8" x 10" Plate - base
1-25" x 1" sch. 40 Pipe - upright
2-4" x 1/4" x 1 1/4" Flat Metal - pivot on upright
1-32" x 1" sch. 40 Pipe - handle
1-12" x 1/4" x 1 1/4" Flat Metal - brace on top of handle

CONSTRUCTION PROCEDURE

1. Cut one 7 1/4" x 3/8" x 4" flat metal as shown in fig. 3.
2. Cut one 9 1/4" x 1/4" x 1 1/4" flat metal and cut one 4" x 1/4" x 1 1/4" flat metal.
3. Drill two 1/2" holes centered 5/8" from the end in both flat metal pieces.
4. Weld the two flat metal 1/4" x 1 1/4" pieces as shown in fig. 3.
5. Cut one 32" x 1" sch. 40 pipe, mark and drill 1/2" holes centered 5/8" from end and 4 5/8" from the end.
6. Cut one 12" x 1/4" x 1 1/4" flat metal.
7. Weld the 12" x 1/4" x 1 1/4" flat metal to the 32" x 1" sch. 40 pipe.
8. Cut one 1/4" x 8" x 10" plate for Stand.
9. Cut one 25" x 1" sch. 40 pipe for the Stand.
10. Cut two 4" x 1/4" x 1 1/4" flat metal and drill two holes centered 5/8" from ends.
11. Weld the two 1 1/4" x 1/4" flat metal to the 32" x 1" sch. 40 pipe.
12. Weld the 32" x 1" sch. 40 pipe to the 1/4" x 8" x 10" plate.
13. Assemble with two 2 1/2" x 1/2" bolts.
14. Finish by grinding all sharp edges, prime metal, and apply enamel paint.